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MOLLUSCORUM BRITANNIÆ SYNOPSIS.

A SYNOPSIS

OF THE

MOLLUSCA OF GREAT BRITAIN,

ARRANGED ACCORDING TO THEIR

NATURAL AFFINITIES AND ANATOMICAL STRUCTURE.

BY

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Phrenological Society of Edinburgh;
Corresponding Member of the Royal Museum Garden of Plants, and Philomathic
Society of Paris, and the Academy of Natural Sciences of Philadelphia.

"Recte enim Veritas Temporis Filia dicitur, non Auctoritatis."—BACON.
"Multa in Majestate Naturæ latent."—PLINY.

LONDON:
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1852

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TO

MY KIND AND WORTHY FRIEND

JULES-CESAR SAVIGNY,

Member of the Egyptian Institute; Member of the Royal Legion of
Honour; Member of the Academy of Marseilles, and
Member of the Wernerian Society of Edinburgh,

THIS FIRST PART OF THIS WORK,

TO HIM WHO HAS DISCOVERED

BY HIS MINUTE RESEARCH, IN THEIR ANATOMICAL

STRUCTURES, MORE THAN

ANY PRECEDING INVESTIGATOR,

IS HUMBLY DEDICATED

BY HIS SINCERE AND OBLIGED FRIEND,

WILLIAM ELFORD LEACH, 1815.

TO MY FRIEND

BARON G. D. CUVIER,

Secretary to the Royal Institute of Paris ; Professor of Zoology and
Comparative Anatomy in the Garden of Plants ; Director
of the French Academies ; Member of the
principal Scientific Societies in Europe
and America ;

WHO HAS PUBLISHED THE BEST MEMOIRS

ON THE MOLLUSCA, CEPHALOPODA AND GASTEROPODA,

I DEDICATE THIS PART OF THIS LITTLE BOOK,

IN TOKEN OF MY AFFECTIONATE AND GRATEFUL REGARD :

WILLIAM ELFORD LEACH.

* * *

TO

JOS. XAV. POLI,

&c.

AS A HUMBLE TESTIMONY OF MY ESTEEM

TO HIM WHO HAS ELUCIDATED THIS DEPARTMENT

OF THE MOLLUSCA

MORE THAN ANY OTHER AUTHOR,

I DEDICATE THIS PART OF MY WORK :

WILLIAM ELFORD LEACH.

PREFACE.

THIS Work was in the course of printing when the Author was prevented from completing it by ill health, in 1820.

The first 116 pages were actually printed and the plates engraved, and more than one copy of the Proofs were in circulation at the time of its interruption. A Copy of the Proofs and the Copper-plates being offered to me for sale, I purchased them, and finding on inquiry that the printed Sheets had been destroyed, and that the MS. and some impressions of the Lithographic plates were in the possession of my friend Mr. Thomas Bell, I obtained permission of Dr. Leach's family to reprint the Work, believing that it was an act of justice to lay before the public the favourite and the last work of my late friend, to whom I am so deeply indebted for the opportunities he afforded me of studying zoology.

Some of the names of the genera and species in the MS., when I received it, had been erased and re-written by the

Author, during his partial recovery; this explains the reason why they do not agree in several instances with those which are generally quoted as his names of the shells.

The MS. has been printed exactly as it was left by the Author, except leaving out certain repetitions or mere translations of the characters of some of the Bivalves.

I have given the three dedications which I found in the MS. It is probable that they were intended to be prefixed to the three portions of the Work, the first to the Ascidians, the second to the Cephalopods and Gasteropods, and the latter to the Bivalves.

After the most careful search, I have not been able to recover the descriptions of the species which occur between the printed and the MS. portion; they were probably in type when the Work was interrupted, and the MS. mislaid; but in order to render the subject complete, I have given from another MS. of Dr. Leach, a list of the species omitted.

JOHN EDWARD GRAY.

British Museum,
February 12, 1852.

The species contained in the part of the MS. missing, mentioned at page 116, judging by the names in "The Classification of the British Mollusca, by W. E. Leach, M.D., 1818," published by Mr. Gray in the Annals and Magazine of Natural History, Oct. 1847, p. 268, are as follows:—

7. PLANORBIS CONTORTUS. See Character in Synopsis at p. 112.

Helix contorta, *Mont. Test. Brit.* 457.

8. PLANORBIS VORTEX. See p. 112.

Helix vortex, *Mont. Test. Brit.* 454.

9. PLANORBIS SPIRORBIS. See p. 112.

Helix spirorbis, *Mont. Test. Brit.* 498.

1. HEMITHALAMUS NITIDUS, *Leach, Ann. & Mag. Nat. Hist.* xx. 269.

Nautilus lacustris, *Mont. Test. Brit.* 191.

FAMILY V. ANCYLIDÆ.

Ancylidæ, *Leach, Ann. & Mag. Nat. Hist.* xx. 269.

1. ANCYLUS LACUSTRIS.

Patella lacustris, *Mont. Test. Brit.* 484.

2. ANCYLUS FLUVIATILIS.

Patella fluviatilis, *Mont. Test. Brit.* 482.

ORDER IV. PHYLLOBRANCHIA. See p. 12.

Phyllobranchia, *Leach, Ann. & Mag. Nat. Hist.* xx. 269.

FAMILY VI. IODEIDÆ.

Iodeidæ, *Leach, loc. cit.* 269.

1. Iodes angulatus, *Leach, loc. cit.* 269.

Ianthina vulgaris, *Lamk.*

2. Iodes Norrissii, *Leach, loc. cit.* 269.

FAMILY VII. CYPRÆADÆ.

Cypræadæ, *Leach, loc. cit.* 269.

1. Cypræa europæa, *Leach, loc. cit.* 269; *Mont. Test. Brit.* 200; *Suppl.* 88.

Cypræa arctica, *Mont. Test. Brit.* 201.
Cypræa bullata, *Mont. Test. Brit.* 202.
Bulla diaphana, *Mont. Test. Brit.* 225.

1. Simia Pennantiana, *Leach, loc. cit.* 269.

Bulla patula, *Penn. Brit. Zool.* t. 70. f. 85 *a*; *Mont. Test. Brit.* 207; *Suppl.* 93.
Bulla Blainvillii, *Leach, MSS.*, 1816.

1. Marginella anglica, *Leach, loc. cit.* 269.

Cypræa voluta, *Mont. Test. Brit.* 203; *Suppl.* 91.
Voluta lævis, *Donov. Brit. Shells,* v. t. 165.

INTRODUCTION.

Hitherto the students of that group of animals named Mollusca, and all those British naturalists who have written on the subject (Lister excepted), have confined their attention merely to describing the shelly coverings, shells and testæ of the testaceous Mollusca, without paying the least attention to the animals themselves. The parts of the shell are named by them with terms not at all applicable to the parts of the animals they are destined to protect. The animals of the Bivalves are named Ascidiæ by the same authors.

It is to the writings of Poli, Cuvier, Savigny, De Lamarck, Tilesius, Le Sueur, Meckel, Fischer, Say, Rafinesque and De Blainville, that we are indebted for those enlightened views which have been universally adopted by all those who feel and acknowledge that an accurate knowledge of their anatomical structure and their economy is essential in approaching towards constituting a natural system, and is alone neglected by those few who are bigoted to the artificial system of the immortal Linnæus.

Without entering into any discussions as to the comparative merit of the various systems which have been proposed, I shall merely subject to my readers what are my ideas, in attempting to arrange the British species of the Mollusca into classes, orders, families, stirpes, genera and species, by giving an enumeration, with the descriptions, of all the British species that have absolutely come under my individual inspection.

I feel that I shall be accused (as I was when I first submitted my arrangement of the Crustacea, Arachnoidea, Acari and Insecta to the public eye) of having constituted too many genera. It is necessary for my justification to observe, that although I formed families containing but one known genus, and genera with but one species, many of these vacancies have been filled up by Cuvier in his 'Règne Animal;' by Rafinesque, Say and other authors. I shall therefore in this Work follow precisely the same plan which I formerly did in the above-mentioned classes.

Respecting the names that I have given to what I consider distinct genera, I have always invariably named the genera, as far as possible, from their essential characters; except only when I have perceived that the names of the parts constituting a generic distinction might probably equally apply to some other genus not yet discovered; and where I have not been enabled to find sufficient and certain essential characters, I have followed the rule laid down by Fabricius, the first naturalist who attempted to form a natural arrangement of Insects,—"Nomina generica nil significantia omnino optima;" and as far as possible I have selected, according to the rule laid down by the same author, that "Nomina barbara nullo modo sunt toleranda."

I have adopted the following Classes; the Cephalopoda, Pteropoda, Gasteropoda and Brachiopoda of Cuvier; the Ascidiæ of Savigny; and the Acephala of De Lamarck and Cuvier: in this last Class, the Acephala, I have taken the liberty of changing its name and substituting another, which I think more consistent, Ginglymaconcha, signifying shells having a hinge; because, although they have no apparent head*, they have nevertheless those most essential parts of the head, namely, the mouth, furnished with double bilobate lips, and an œsophagus.

I must say a little more in my defence before I conclude this Introduction, respecting the minute divisions I have made in the new genera which I have given in this Work. I have three species of Physa, two of Nauta, five of Gulnaria from Switzerland; of Pomatia I have seen five species, besides that inhabiting England; one from Smyrna, given to me by Dr. Merion, which is now in the British Museum; three species in the collection of Lamarck, and one is in the Collection of Baron de Férussac: that from Smyrna Dr. Merion assures me had a calcareous epiphragm; and from the similar structure of the peritrema in all the species, I have no doubt but that they all have a similar one.

◆

MOLLUSCA.

Animalia mollia, nuda; aut testâ unâ internâ vel externâ; aut testis duabus externis induta.

Animals with soft bodies, naked; or furnished either with one internal or external shell; or with two external shells.

General Remarks on the Mollusca.

All the animals of this group have neither a skeleton nor a vertebral canal.

Their nervous system does not unite into a spinal marrow, but consists merely of medullary masses dispersed over different parts of their bodies. The principal mass, which is situated transversely under the œsophagus, and round which it forms a nervous collar, is termed the brain.

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* Cuvier admits them to have a head, 'Règne Animal,' vol. ii. p. 408; "On ne lui voit dénotable qu'une double rangée des franges autour du manteau, laquelle n'a ses lobes unis qu'au-dessus de la tête."

Their organs of motion and of sensation have not the same uniformity in number or position with those in the vertebrose animals: the variety is especially remarkable respecting the viscera, and more especially in the position of the heart and the respiratory organs: some of them respire the elastic atmospheric air, and others respire the air contained in fresh or salt water.

The circulation of these animals is always double; that is to say, that their pulmonary circulation always makes a circuit aside and complete: this function is aided by a fleshy ventricle, not situated, as in the fishes, between the veins of the body and the arteries of the branchiæ (gills); but, on the contrary, between the pulmonary veins and the arteries of the body: this forms an aortic ventricle. In the class Cephalopoda, they are furnished with a pulmonary ventricle, which divides itself into two. The aortic ventricles in the class Brachiopoda, and the family Arcadæ of the class Ginglymaconcha, divide as in the other genera; but in all the other families of the class Ginglymaconcha, the auricle alone is divided.

When they have more than one ventricle, they are not united together, as in the animals with warm blood, but frequently are widely separated from each other, and may then seem to have many hearts, to those who have examined them cursorily.

The blood of these animals is white or blueish, and the fibrine is less abundant than in that of the vertebrose animals. It is probable that their veins may sometimes perform the functions of absorbent vessels.

Their muscles are attached to various parts of their skin, and form tissues less complicated, but more serrated, than in vertebrose animals.

Their locomotion consists of various contractions, which produce the inflections, prolongments or slackenings of their various parts; at least, when they walk, swim or seize on different objects, according as the forms of their parts permit them: but when the members are not sustained by the articulated and solid levers, their movements are not rapid.

Their irritability is generally extreme and remains a long time after any parts are divided from their body. Their skin is naked, very sensitive, and is generally endued with a liquor more or less mucous, which issues from their pores. No olfactory organ has been observed in any of the classes, although they appear to possess this sense: it seems that all the skin, which much resembles a pituitary membrane, has this sense.

The eyes are wanting in all the classes excepting the Cephalopoda, who possess very perfect eyes; and in some of the Gasteropoda the eyes are situated on the tentacula (tentacles).

All the animals of this group have a development of the skin which covers the body, which resembles more or less a mantle; which in some is capable of being contracted into a simple disc; in others, join and form one or two tubes, or form a hollow sac; or lastly form fins.

These animals have every sort of mastication and deglutition; their stomachs are sometimes simple, sometimes multiplied, often furnished with peculiar hard armour-like substances; and their interstices vary much in proportion and length. Almost all of them have salivary glands; all have a liver of considerable size; they have no pancreas or mesentery, and many of them have secretions proper to themselves; but none of them produce urine.

They exhibit all the varieties of generation. Many impregnate themselves; the others are hermaphrodites, and have need of reciprocal copulation; in many the sexes are separate. Some are viviparous; some oviparous, and their eggs are enveloped in a shell composed of a simple viscosity, which is more or less hard.

All the varieties relative to digestion or generation are generally all found in the same orders, and sometimes only in the same family.

And lastly, the mollusca in general are animals but little developed, little susceptible of industry: all of them are remarkable for their fecundity and tenacity of life; and their symmetry is less complete than that of the vertebrose animals.

MOLLUSCA.

SYNOPSIS OF THE CLASSES.

I. CEPHALOPODA. Cuttles.

Head distinct from the body. *Mouth* surrounded by appendages termed legs, which are furnished on their inner aspects with suckers: these legs are used for locomotion, as well as for seizing their prey. *Respiration* performed by gills, which are placed in a sac, with the other automatic organs.

II. GASTEROPODA. Univalves.

Head distinct from the body, and for the most part furnished with tentacles. *Respiration* performed by gills, which are generally internal. *Locomotion* accomplished by a strong muscular foot, attached to the under part of the body.

III. CONCHÆ. Bivalves.

Head in no degree distinct from the body. *Mouth* with lips, which are generally produced into triangulate lobes. *Respiration* performed by four double striated membranes, situated between the mantles. *Locomotion* wanting, or performed by a foot, which is attached anteriorly to the abdomen. *Body* protected by a shell on each side.

IV. BRACHIOPODA.

Head in no degree distinct from the body. *Mouth* surrounded by two long and fleshy arms, ciliated on each side. *Respiration* performed by leaf-like appendages, that are attached to each lobe of the mantle. *Locomotion* none. *Body* protected by a shell on each side.

V. ASCIDIÆ.

Head not distinct from the body. *Respiration* performed by two reticulated sacs surrounding the automatic organs, and covered by the mantle. *Locomotion* none.

CLASSIS I. CEPHALOPODA.

Cephalopoda, *Cuvier.*
Sepia, *Linné.*

Corpus sacco immersum. *Os* centrale, mandibulis duabus fortissimis rostrum psittacinum inversum referentibus, armatum. *Labium* circulare, carneum, mandibulas amplectens; externè reflexum, annulum tenuem circa partem carnosam efformans. *Pedes* octo aut decem, in aspectum interiorem antliati, os circumdant. *Oculi* duo, laterales, perfecti. *Saccus* cloacâ quæ corpori infra annectitur instructus. *Sexus* distinctus.

Ordinum Characteres.

Ordo I. Octopoda. *Saccus* apterus. *Pedes* octo, per totam longitudinem interiorem antliati: *Antliæ* simplices. *Cloaca* simplex. *Labium* ultra reflectionem annularem non productum. *Dorsum* osse nullo instructum.

Ordo II. Decapoda. *Saccus* pinnis instructus. *Pedes* decem; octo ut in ordine primo; duo alii supplementarii, valde elongati et ad apicem solummodo antliati: *Antliæ* armatæ (annulo corneo externè sæpius spinulifero in generibus indigenis omnibus instructæ). *Cloaca* valvâ internâ instructa. *Labium* ultra reflectionem annularem in membranam dilatatum. *Dorsum* osse instructum.

The animals of this class are commonly denominated *Cuttles, Cuttlefish, Sleevefish, Inkfish,* or *Squids.*

Their body is surrounded by a sac. Mouth central, armed with two very strong jaws, somewhat resembling the beak of a parrot inverted. Lip circular and fleshy, embracing the man-

dibles; reflexed externally, forming a ring around the fleshy part. Legs eight or ten, surrounding the mouth, their inner aspects furnished with suckers. Eyes two, lateral, perfect. Sac furnished with a cloaca, which is attached to the body. The sexes distinct.

The sac contains the organs of respiration, digestion, circulation, generation, and a gland, common to all the genera, that secretes a black liquor, which can be ejected at the will of the animal. The sac is short and ovate in *Polypus* and *Sepiola*; oblong, depressed, and rounded behind in *Sepia*; very elongate, pointed behind, and slightly depressed in *Loligo*. The fins are appendages of this sac; they are wanting in the first order, but are found in all the hitherto discovered genera of the second order; they are but little prominent in *Sepia*, where they run down the whole of each side of the sac, and meet behind: they are very abruptly produced from the middle part of each side in *Sepiola*, and resemble wings; whilst in *Loligo* they arise high on each side, are immediately dilated, and gradually becoming narrow, unite at the posterior extremity of the sac.

The organs of respiration resemble ferns, more or less distorted in the different genera; one is placed on each side of the interior of the sac. Plate I. fig. 5, B.

The organs of digestion consist of a stomach or gizzard, a cæcum (or blind gut), and a large intestine terminating anteriorly. The œsophagus, in *Polypus*, is dilated extremely at its lower extremity, before it enters the stomach, and is grooved internally; whilst in *Sepia* it retains its original size, until it enters the stomach. The stomach of *Polypus* and of *Loligo* is very strong, deeply grooved within, and covered by a very hard substance; that of *Sepia* is thin and very simple.

The organs of circulation consist of three hearts: one central, whose office is that of general circulation; and two lateral, one at the base of each gill, destined to perform pulmonary circulation. The central heart is somewhat semicircular in *Polypus*, and trilobate in *Sepia*. The lateral hearts have appendices in *Loligo*, are simple in *Octopus*; whilst in *Sepia* there is a spongy, concave appendage, attached to the under parts of each lateral heart, having no connexion with their cavities.

The organs of generation are situated at the bottom of the sac. Those of the male consist of vesiculæ seminales, terminating in a common opening, the sides of which are slightly produced into a tube; those of the female consist of two ovaries, terminating each in an oviduct.

The *ink-gland* is composed of a spongy substance, filled with a black liquor, and covered by an integument, which terminates anteriorly in a tube, more or less extended in the different genera. This gland is imbedded in the lower surface of the liver in *Polypus*; placed under the liver in *Loligo* and *Sepiola** ; and is situate before the liver in *Sepia*. Rondeletius, Monro, and other anatomists, believed this gland to have been the gall-bladder, but its structure and functions totally disprove this notion. The contained liquor is subject to the will of the animals; they discharge it when entangled in the nets of the fishermen, who maintain that they do the same in the sea, for the purpose of obscuring the water around them when pursued by their enemies. When evaporated, it has all the general properties of Indian or Chinese Ink, which is said to be prepared from an animal of this class.

The head is placed on the anterior part of the body, and projects beyond the opening of the sac. The mouth contains a tongue, bristled with tubercles. The eyes are extremely complicated in their structure; and although compound, they present a vast difference from those of the animals of the vertebrose type. The hinder aspect of the eye exhibits a vast expansion of nerves, which unite into a very large ganglion, from which the optic nerve arises and passes through a cartilage, which I will presently describe, to join the anterior mass of the nervous system, named the *brain*.

At the base of the feet posteriorly is situated a cartilage, concave in front and convex behind; having its centre perforated, for the passage of the œsophagus or gullet. Plate I. fig. 6, 7, Ap. Œ.

Within the convexity of this cartilage is situated the brain, which occupies the lateral and posterior parts of the cavity. The anterior part of the brain, internally, receives the slender nerves from the region of the mouth, many of which often unite, before their junction with the brain : externally the same aspect receives the nerves of the legs, each of which is separate. The lateral aspects receive the optic nerve, which, in comparison with the large ganglion, from which each passes, is very diminutive. The nerves from the intestines and posterior part of the sac join the brain at its hinder aspect.

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* In *Sepiola* this gland is bilobate.

All the Cephalopoda inhabit the sea, and feed on crustacea, mollusca, and small fishes. They have the power of changing their colour, which had not escaped the observations of Rondeletius and the older naturalists. Their eggs are deposited loose in the ocean, and are often thrown on shore during storms, and sometimes by the common movement of the waves. Those of the different genera vary in their forms ; for the most part they are agglutinated, and form bunches, which are commonly denominated *Sea Raisins.*

Some of the species are esteemed delicious food, and are eaten in many parts on the shores of the Mediterranean.

The best dissertation on the anatomical structure of this class of Mollusca, forms the first paper in Cuvier's 'Mémoires pour servir à l'Anatomie des Mollusques.'

ORDER I. OCTOPODA.

Sac without fins. *Lip* not dilated beyond its reflected ring. *Legs* eight, united at their bases by a membrane, and having the inner aspect of each leg, from its base to its extremity, furnished with simple suckers. *Cloaca* without a valve. *Back* without a bone.

We seem to possess but one species of this order in our seas, and this is referable to the genus *Polypus.*

Genus 1. POLYPUS.

Πολύπους, *Aristotelis.*
Polypus, *Plinii, Rondeletii, Leach.*
Octopus, *Lamarck, Cuvier, Duméril.*

Pedes elongati, attenuati; antliis sessilibus duplici serie alternatis instructi; membranis connectentibus ad pedum fere apices, utrinque productis.

Legs elongate, attenuated towards their extremities; their suckers simple, and sessile, arranged in a double alternating series; the connecting membrane produced nearly to the extremities of the legs, on each side.

The stomach is extremely muscular, deeply grooved internally, as in many birds, and covered by a loose, but very strong integument. From the pyloric end proceeds the large intestine, which runs above the liver, and after making two turns on the right side, returns at the back of the liver, and terminates before it, at the origin of the cloaca.

The ink-gland is closely imbedded in the lower surface of the liver.

1. Polypus Antiquorum.

S. pedibus quinquies fere corpore longioribus.
Sepia Octopodia, *Linn. Syst. Nat.* xii. 1095.
Habitat in mari.

Legs nearly five times the length of the body. Inhabits the sea, and sometimes visits our coasts.

Pennant has figured a species of the genus *Eledone,* under the name *Sepia Octopodia*; and as I cannot find that his figure has been copied from that of any other author, I think it proper to mention the circumstance, as it may lead to investigation, and to the discovery of that genus in the British sea.

Eledone may at once be distinguished from *Polypus* by the suckers on its legs, which are arranged in a single, and not in a double row.

ORDER II. DECAPODA.

Sac furnished with fins. *Legs* ten; eight as in the first order, having pedunculated suckers; and two others very much elongated, and bearing suckers only at their extremities. All the *suckers* armed (in the indigenous genera with a horny ring, its external margin generally spinulose). *Cloaca* with an internal valve, near its external extremity. *Lip* beyond the annular reflexion, dilated into a membrane. *Back* furnished with a bone.

Synopsis Familiarum.

Fam. I. Sepioladæ. *Saccus* ovalis, bursiformis. *Pinnæ* breves, ad apicem saltem liberæ. *Collum* supra altè frænatum, aut cum sacco coalescens. *Os* styliforme, corneum. *Cloaca* libera.

Fam. II. Sepiadæ. *Saccus* subdepressus, posticè rotundatus. *Pinnæ* ab apice usque ad sacci extremitatem productæ. *Collum* liberum. *Os* ovale, depresso-convexum, calcareum; posticè corneum. *Cloaca* usque ad pedum inferiorum basin fere cum collo coalita.

Fam. III. Loliginidæ. *Saccus* elongatus, teretiusculus posticè acuminatus. *Pinnæ* posticè coalescentes. *Collum* liberum. *Os* plumiforme, corneum. *Cloaca* ad apicem libera, supernè 4 frænata: fræna per paria disposita.

FAMILY I. SEPIOLADÆ.

Sac oval, bag-shaped. Fins short, their extremities at least free. Neck highly reined, or coalescing with the sac. Bone horny and linear. Cloaca free.

Genus 2. Sepiola.

Sepiola, *Rondeletii*, *Leach.*

Pinnæ laterali-dorsales, distantes, aliformes. *Pedes ordinarii* æquales. *Antliæ* breviter pedunculatæ, annulis corneis externè coarctatis obtusè spinulosis armatæ. *Pedes supplementarii* ad apices compresso-dilatati, antliati. *Antliæ* pedunculis longis, annulisque spinulosis instructæ. *Collum* posticè cum sacco coalescens. *Saccus* subtus utrinque ad corpus frænatus.

Fins situated on the sides of the back, distant from each other, and resembling little wings. The eight usual legs, equal in length, their suckers with short peduncles, their extremities armed with a horny ring, whose margin is very obscurely ciliated with obtuse, short spines. The two supplementary arms with their extremities compressed and dilated; their suckers armed with spiny rings, and furnished with long peduncles. Neck coalescing with the sac behind. Sac on each side, below, reined to the body.

1. SEPIOLA RONDELETII. Plate VI. figs. 1–3.

S. carnea, nigro-purpureo maculata; sacci margine antico, pinnis infra, cloacâ brachiisque internè, pallidè croceis aut luteis.
Sepiola, *Rondel. de Piscibus*, pl. 1. lib. xviii. cap. 10. p. 519.
Sepia Sepiola, *Linn. Syst. Nat.* xii. i. 1196; *Penn. Brit. Zool.* iv. 54. pl. 29. f. 46.
Le Sepiole, *Cuv. Règ. Anim.* ii. 364.
Sepiola Rondeletii, *Leach, Zool. Misc.* iii. 140.
Small Cuttle, *Pennant, loc. cit.*
Habitat ad fundum maris et in æstuariis.

Pale, coloured with flesh-red, spotted with black-purple; the anterior margin of the sac, the under surface of the fins, and the inner aspect of the feet, pale saffron or luteous.

Length from the base of the legs to the extremity of the sac one inch.

This species, which appears to have been unknown to the ancients, who probably confounded it with the young of *Sepia*, was first noticed and described as a genus by that excellent observer of nature, Rondeletius, who has accurately pointed out the essential characters which divide it from *Sepia* and *Loligo*; I have consequently named this, the only known species, after him.

Inhabits the bottom of the sea amongst gravel, and in estuaries, where it is often taken along with oysters. It is not uncommon at Plymouth, in the Kingsbridge Estuary at Salcombe, and at the mouth of the Thames. Pennant received it from the Flintshire coast.

FAMILY II. SEPIADÆ.

Sac somewhat depressed, rounded behind. Fins produced quite to the extremity of the sac. Neck free. Bone oval, depressedly convex, calcareous; its hinder aspect horny. Cloaca coalescing to the neck, almost as far as the base of the inferior legs.

Genus 3. Sepia.

Σηπία, *Aristotelis, Athenæi, Oppiani, &c.*
Sepia, *Plinii, Linné, Cuvier, Lamarck, &c.*

Pinnæ angustæ, posticè non coalescentes. *Pedes ordinarii* inæquales: superiores breviores; paria 2, 3, et 4 gradatim longiora. *Pedes supplementarii* ad apicem gradatim dilatati et acuminati. *Antliæ* irregulariter dispositæ, omnes pedunculatæ et annulis corneis inermibus instructæ. *Saccus* subtus cum corpore non frænatus.

Fins narrow, not coalescing behind. Ordinary legs unequal: the upper ones shortest; the second, third and fourth pairs gradually longer. Supplementary legs gradually dilated at their extremities, and again acuminated at their points. Suckers irregularly disposed, all pedunculated, and furnished with unarmed horny rings. Sac not reined with the under part of the body.

1. Sepia officinalis.

S. cloacâ posticè cum pedum inferiorum membranâ connexâ, annulis antliarum ad basin et apicem abruptè coarctatis.

Sepia, *Rondel. de Pisc.* i. lib. viii. cap. 2. p. 498.

Sepia officinalis, *Linn. Syst. Nat.* xii. i. 1195; *Penn. Brit. Zool.* iv. 55; *Lam. Syst. des An. sans V.* 59; *Cuv. Règ. Anim.* ii. 365.

Officinal Cuttle, *Penn. loc. cit.*

Habitat in mari, gregaria.

Cloaca connected with the membrane of the lower feet, the rings of the suckers abruptly contracted at their extremities and bases.

Colour pale flesh-red, freckled with purple; the back spotted with brown. Legs internally without spots. The points in the back are smaller and more numerous than those on the lower aspect. Supplementary arms half as long again as the body. Length 1 to 1¾ foot.

Inhabits the European seas, very often occurs on our own coasts, and is sometimes gregarious. The eggs resemble a bunch of grapes.

This animal was well known to Aristotle, Athenæus, Oppian, and other of the ancient naturalists. Aristotle did not overlook the cartilage at the base of the feet, which, he observes, is placed between the eyes, containing a little brain. The same author likens the supplementary arms to proboscides. He was well acquainted too with their eggs, which he has accurately described, and has detailed the amours of the *Sepiæ*; but I do not give the least credit to what he has said on this latter subject.

The black liquor was likewise known to the ancients, who sometimes used it as ink, naming it Atramentum, believing that it was used by the animal to cloud the water when it was followed by its enemies.

FAMILY III. LOLIGINIDÆ.

Sac elongate, rounded, acuminated behind. Fins coalescing behind. Neck free. Bone horny, resembling a solid feather. Cloaca with its anterior extremity free, with four bridles disposed in pairs, uniting it above.

Genus 4. Loligo.

Loligo, *Plinii, Rondeletii, Lamarck, &c.*

Pinnæ laterales, gradatim dilatatæ et posticè gradatim acuminatæ. *Pedes ordinarii* inæquales : par superius brevius ; paria 2 et 3 gradatim longiora ; par quartum tertio paulò brevius: *Antliæ* pedunculatæ annulo corneo margine spinoso armatæ, duplici serie alternatim dispositæ. *Pedes supplementarii* teretes ad extremitates gradatim dilatati et ad apicem gradatim acuminati, internè plani, antliis majoribus pedunculatis, annulis corneis, spinosis armati. *Saccus* infernè cum corpore non frænatus.

Fins lateral, gradually dilated and gradually acuminated behind. Ordinary legs unequal ; the upper pair shortest ; the second and third pairs gradually longer ; the fourth pair rather larger than the third. All the antliæ pedunculated, and armed with a horny spinous ring, arranged in a double alternating series. Supplementary legs rounded, their extremities gradually dilated, their points gradually acuminated, flat within, and furnished with larger suckers, which are pedunculated, and armed with horny spinous rings. Sac not reined to the body.

1. Loligo magna. Plate I.

L. pinnis rhombum efformantibus.
Loligo magna, *Rondel. de Pisc.* i. lib. xvii. cap. iv. p. 506.
Sepia Loligo, *Linn. Syst. Nat.* xii. i. 1196 ; *Penn. Brit. Zool.* iv. 53. pl. 27. f. 43.
Loligo vulgaris, *Lam. Syst. des An. sans V.* 60.
Le Calmar commun, *Cuv. Règ. Anim.* ii. 364.
Great Cuttle, *Penn. loc. cit.*
Habitat in oceano Europæo gregaria, in Britanniæ littoribus frequens.

Fins forming a rhomb. Colour pale flesh or yellowish. Under part of the sac freckled with pink-red ; upper part of the sac and fins freckled with red. Under aspect of the fins, and inner aspects of the arms, without spots. Length from 1 to 2 feet.

Inhabits the European ocean in herds, and very frequently visits our coasts.

2. Loligo parva. Plate VI. figs. 4–6.

L. pinnis ante bases paululùm productis, externè rotundatis, ad apicem acuminatis.
Loligo parva, *Rondel. de Pisc.* i. lib. xvii. cap. 5. p. 508.
Sepia media, *Linn. Syst. Nat.* xii. i. 1095 ; *Penn. Brit. Zool.* iv. 54. pl. 29. fig. 45.
Le petit Calmar, *Cuv. Règ. Anim.* ii. 364.
Loligo parva, *Leach, Zool. Misc.* iii. 141.
Middle Cuttle, *Penn. loc. cit.*
Habitat in mari, præsertim in æstuariis et sinubus.

Fins with a little process advancing a little before their bases ; their sides rounded, their posterior extremities acuminated. Colour pale flesh, spotted in every part (excepting the under parts of the fins and the inside of the legs) with violet-red or purple. The spots on the lower aspect of the sac are smaller and less numerous. Length from 3 to 5 inches.

Inhabits the sea, and is most commonly found in bays and estuaries.

CLASSIS II. GASTEROPODA.

Gasteropoda, *Cuvier.*
Vermes Testacea Univalvia, *Linné.*
Mollusca, Ordo Gasteropoda, *Lamarck.*
Cephalophora, *De Blainville.*

Ordinum Synopsis.

* *Sexus hermaphroditus.*

I. Gymnobranchia. *Branchiæ* nullo modo tectæ, dorsales. *Testa* nulla.

II. Stegobranchia. *Branchiæ* dextræ, laterales aut dorsales, sub pallii processu tectæ. *Testa* interior aut exterior.

III. Saccobranchia. *Branchiæ* saccum internè tegentes et non elevatæ. *Testa* interior, aut exterior vel nulla ; nunquam operculata.

** *Sexus distinctus.*

IV. Phyllobranchia. *Branchiæ* è foliis plurimis parallelis efformatæ. *Testa* exterior, spiralis, in plurimis operculata.

V. Antrobranchia. *Branchiæ* saccum cavum internè tegentes, non elevatæ. *Testa* exterior, spiralis, operculata.

*** *Sexus androgynus.*

VI. Aspidobranchia. *Branchiæ* è foliis plurimis efformatæ, sub testâ positæ. *Testa* exterior, non operculata.

VII. Cyclobranchia. *Branchiæ* è foliis efformatæ, inter pedis basin et pallium positæ. *Testa* sæpius exterior, sæpè multipartita, nunquam operculata.

The animals of this class are denominated in common language *Univalve Shells, Slugs,* and *Sea-Worms.*

As their name imports, they move by a foot, which is placed on the lower aspect of their body ; this part is more or less developed in the different families and genera, as will be shown hereafter.

The head (*caput*) is situated at the anterior aspect of the body, and is generally furnished with tentacula, which are either retractile or stationary.

The families Limacidæ and Helicidæ have four tentacula, the upper ones being longest, and bearing eyes at their extremities ; Pl. II. fig. 1, *oc.*

The orders Cyclobranchia, Phyllobranchia, Antrobranchia, and all the families of Saccobranchia, excepting the two mentioned above, have but two tentacula, and when they have eyes, they are situated at their base ; internally, Pl. II. fig. 4 ; externally, Pl. II. fig. 10 ; above, Pl. II. fig. 7 ; or at their extremities, as in the newly discovered genus *Assiminia,* Pl. IX. fig. 4.

The mouth (*os*) is simple and transverse in *Helix* ; circular and tubular in *Buccinum,* Pl. II. fig. 10, *os* ; vertical in Aplysiadæ. It is armed with jaws in Tritoniadæ, and with a tongue bristled with hooks in *Aplysia.* The lips (*labia*) are sometimes produced into lobes laterally, and are liable to be mistaken for tentacula.

The body is elongate and capable of contraction in Limacidæ, Dorididæ, &c. ; spiral in all such as are covered by a spiral shell, and incapable of changing its form in the Cyclobranchia. The anterior part of the back in Limacidæ is formed into a sort of thoracic disc containing the heart and respiratory organs. The back is generally covered by the mantle (*pallium*), which is very variable in its form. In Pleurobranchidæ it is widely dilated laterally, Pl. VII. fig. 4, 5, exceeds the foot in breadth, and covers the branchiæ above ; in Cyclobranchia it is attached to the shell within the margin on every side, Pl. II. fig. 11, *pl.* ; it is produced on each side into two membranes, which meet over the back in the Aplysiadæ, covering the cavity that contains the organs of respiration, and forming by their junction, at will, anteriorly, a sort of siphon, by which water is conveyed to the branchiæ, Pl. VII. fig. 8. A similar effect, with slight modifications, takes place in the Purpuradæ, by a folding of the mantle, which is considerably produced on the left side, into a more distinct siphon, situated in the channeled process, which is more or less developed in all the indigenous genera of that family, on the left side of their shell (excepting in those whose whole system is reversed or heterostrophe), by means of which they are enabled to respire, when their shell is closed by the opercule, Pl. II. fig. 10, *tr*.

The anterior part of the back is sometimes furnished with tentacula, which are stationary or retractile. There are two, which are retractile within sunken or slightly prominent tubes, in Dorididæ and Tritoniadæ. The Eolidiadæ have four of these tentacula, two of which are certainly incapable of retraction.

The foot is as long as the body in Limacidæ, Pl. VIII. fig. 1, 2; longer than the body in *Aplysia*, and not capable of changing its form materially in the Cyclobranchia, Pl. II. fig. 11.

The branchiæ are subject to many modifications in form and position. They are spread over the surface of the inside of a sac-like cavity, in the orders Saccobranchia and Antrobranchia. They are foliaceous and placed in a sac-like cavity in the order Phyllobranchia, or upon the back, beneath the shell, in the order Aspidobranchia. The branchiæ are naked in Gymnobranchia; they are branched and encircle the anus in the family Dorididæ; they are branched and arranged along the sides of the back in Tritoniadæ; and are foliaceous and arranged like tiles, over each other, on the sides of the back in Eolidiadæ, Pl. VII. fig. 3. In the order Stegobranchia they are situated on the sides, or sides of the back, and are covered by a reflection of the mantle. They are placed on the right side, between the junction of the mantle and the foot, in the family Pleurobranchidæ, Pl. VII. fig. 5; placed on the right side of the back and covered by a testaceous operculum, which is enveloped in the mantle, in Aplysiadæ, Pl. VII. fig. 8; situated on the right side and covered by a shell in Marseniadæ; or covered by a dilatation of the mantle on the right side, and protected by the shell, in Bulladæ. In the order Cyclobranchia the branchiæ are foliaceous, and are situated on each side, between the base of the foot and the mantle, Pl. II. fig. 11.

The shell is wanting entirely in the order Gymnobranchia; it is much depressed and very obscurely spiral in the three first families of the order Stegobranchia, and involutely spiral in the Bulladæ, which form the fourth family of the same order.

In the order Saccobranchia the shell is altogether wanting, is represented by fragments of calcareous matter placed under the mantle, or by a depressed shell, in the family Limacidæ; or produced into a depressed or highly elevated spire, with every intermediate state, in the families Helicidæ, Carychiadæ, and Limnadæ; whilst in the last family Ancylidæ, the shell is simply conic, with the most obscure rudiment of a spire.

In the orders Aspidobranchia and Cyclobranchia, the shell is conical, or auriform, with every modification that can exist between these forms; or is elongate, and composed of eight pieces, which are either external or enveloped in the mantle.

In the orders Phyllobranchia and Antrobranchia, the shell is always spiral, and has for the most part its aperture closed by an operculum, which is vesiculose in the family Janthinadæ, wanting in Cypræadæ, and horny or testaceous in Purpuradæ and Turbinidæ.

The food of the Gasteropoda consists of vegetable, animal, and excrementitious matters.

The sexes are hermaphrodite in the orders Gymnobranchia, Stegobranchia, and Saccobranchia; distinct in the orders Phyllobranchia and Antrobranchia; androgynous in the orders Aspidobranchia and Cyclobranchia.

ORDER I. GYMNOBRANCHIA.

Nudibranches, *Cuvier*.

Branchiæ nullo modo tectæ, dorsales. *Testa* nulla. *Sexus* hermaphroditus.

The genera which compose this order have no shell; the respiratory organs are placed on the sides or posterior extremity of the back, and vary in their form in each genus. The sexes are hermaphrodite. All the species inhabit the sea.

Synopsis Familiarum.

Fam. I. DORIDIDÆ. *Branchiæ* anum circumdantes, radiatæ, ramosæ. *Anus* dorsalis, posticus, medius. *Pallium* undique dilatatum. *Sexuum Organa* anteriora, lateralia, dextra. *Tentacula* duo labialia, et duo dorsalia, annulata. *Os* rostriforme. *Mandibulæ* nullæ.

Fam. II. EOLIDIADÆ. *Branchiæ* dorsi latera imbricantes. *Anus* et *Sexuum Organa* lateralia, dextra; aperturâ communi. *Pallium* non dilatatum. *Tentacula* duo labialia; quatuor dorsalia subannulata. *Os* labio crasso. *Mandibulæ* nullæ.

Fam. III. TRITONIADÆ. *Branchiæ* laterali-dorsales, ramosæ. *Anus* postico-lateralis, dexter. *Pallium* aliquantulum dilatatum. *Sexuum Organa* antico-lateralia, dextra. *Tentacula* duo dorsalia, retractilia. *Os* mandibulis duabus corneis armatum.

FAMILY I. DORIDIDÆ.

Cyclobranches, *Blainville.*

Branchiæ anum circumdantes, radiatæ, ramosæ. *Anus* dorsalis, posticus, medius. *Pallium* undique dilatatum. *Sexuum Organa* anteriora, lateralia, dextra. *Tentacula* duo labialia, et duo dorsalia, anteriora, annulata. *Os* rostriforme. *Mandibulæ* nullæ.

Branchiæ radiated and branched, arranged in a circle round the anus, which is situated on the hinder part of the middle of the back. Mantle dilated on all sides. Sexual organs situated on the right side anteriorly. Tentacula two on the head, which are simple; two others on the back, which are annulated. Mouth rostriform, without mandibles.

The nervous system of the indigenous genera consists of twelve pairs of nerves, and a brain, which is situated anteriorly. The first pair of nerves arises from the dorsal tentacula; the second from the tube which forms the mouth; all the others (excepting the eleventh and twelfth, which arise from the stomach and its vicinity, the first forming two lateral ganglia, the twelfth completing the nervous collar) from the hinder and lateral muscles.

The stomach is very thin, and the other parts of the intestinal canal short. The liver is very large; and has in contact with it a gland that secretes a liquor which passes out by a tube opening on the left of the anus, within the circle of branchiæ.

The Dorididæ inhabit the sea, especially on rocky coasts, where they may be found on the recess of the tide. They are occasionally taken by the dredger in deep water, and are more rarely thrown ashore by storms on some of our sandy coasts.

Synopsis Generum.

Dorsum appendicibus supplementariis nullis. Pes posticè obtusus	5. Doris.
Dorsum ante tentacula dorsalia appendicibus 4, et pone branchias appendicibus 2 instructum. Pes posticè acuminatus	6. Cufæa.

Genus 5. Doris.

Doris, *Auctorum.*

Dorsum appendicibus nullis instructum. Pes posticè obtusus.

Synopsis Specierum.

* *Dorso lateribusque crebrè verrucosis.*

1. *Montagui.* Corpore depressiusculo, verrucis planis, branchiis 8-radiatis.
2. *Britannica.* Corpore convexo, verrucis plano-convexis, branchiis 10-radiatis.
3. *vulgaris.* Corpore convexiusculo, verrucis prominentibus convexis, branchiis 14-radiatis.

4. *Rocinela.* Corpore convexiusculo, verrucis longiusculis acuminatis.
5. *Elfortiana.* Corpore convexo, verrucis papillatis; lateralibus (posticè præsertim) elongatis, branchiis 16-radiatis.

** *Dorso lateribusque verrucosis.*

6. *marginata.* Corpore ovato depresso lævi, pallio lateribus diaphanis.
7. *nodosa.* Corpore elongato, dorso tuberculis octo in lineas duas laterales digestis, pallio lateribus tenuissimis, branchiis 12-radiatis.
8. *coccinea.* Dorso tuberculato, tentaculis dorsalibus ad apices truncatis stylo retractili instructis, branchiis 10-radiatis.

The back of *Doris* has no additional appendages; in the indigenous species its surface is either warted, slightly tuberculated, or quite smooth. The foot is obtuse behind. The mouth produced into a tube. Tentacula fleshy, wide and flat, without any appearance of eyes.

The anatomy of this genus occupies the fifth of Cuvier's 'Mémoires sur les Mollusques.' According to this author, the brain varies in form; he has observed it to be oval in one species and lobate in another.

The eggs of *Doris,* which I received from Mrs. Griffiths, are deposited on dead shells or rocks, to which they are attached in mass by a glutinous matter that is insoluble in water.

1. Doris Montagui.

D. depressiuscula, verrucis planis, branchiis octo-radiatis. Color flavicans aut subcroceus.

Long. 2 poll.

Habitat in Danmoniæ Australis mari, rarissima.

Body rather depressed, the warts flat, the branchiæ composed of eight rays. Colour yellowish or pale saffron. Length 2 inches.

Inhabits the rocky shores of the south-western coasts of Devon and Cornwall, but is extremely rare. I have received specimens from Salcombe Bay, the Plymouth Sound, and Padstow. It was discovered by Montagu, who supposed it to be *Doris Argo,* a species that has not yet been discovered in our seas.

2. Doris Britannica.

D. convexa, verrucis plano-convexis, branchiis 10-radiatis. Color croceus, aut albo purpureoque varius.
Long. 2 poll.
Habitat ad littora scopulosa Britanniæ, vulgatissima.

Body convex, the warts plano-convex, the branchiæ composed of ten rays. Colour saffron, or variegated with white and purple. Length 2 inches.

I have found this species on all the rocky coasts that I have visited. It is common in Arran and Bute; in the Hebrides; in the Frith of Forth; on the northern and southern coasts of Cornwall and Devon; on the Kentish coasts; on the coast of South Wales; on the southern coast of Ireland; and I have received it from my friend J. Henslow, Esq., who found it in the Isle of Man, where he observed it in abundance.

3. Doris vulgaris.

D. convexiuscula, verrucis prominentibus convexis, branchiis 14-radiatis.
Doris verrucosa, *Penn. Brit. Zool.* iv. 43. pl. 21. fig. 23.
Color albicans, pallidè brunneo nonnunquam varius. Long. corp. ½ poll.

Body rather convex; the warts convex and prominent; the branchiæ with fourteen rays. Colour whitish, sometimes variegated with pale brown. Length half an inch.

Inhabits all the rocky shores of Great Britain, and is sometimes taken by the dredge in deep water.

It appears to be Pennant's *Doris verrucosa,* but it is in no way allied to the *D. verrucosa* of Linné, which is a large species, inhabiting the Indian Ocean.

4. Doris Rocinela.

D. convexiuscula, verrucis longiusculis acuminatis.
Long. corp. ½ poll.
Habitat in mari Cantiano, prope Sandgate et Dover.

Body rather convex, the warts rather long and acuminated. Length half an inch.

Inhabits the sea off the Kentish coast near Dover and Sandgate.

The above description is made from specimens preserved in spirits.

5. **Doris Elfortiana.** Plate VII. fig. 1.

D. convexa, verrucis papillatis; lateralibus (posticè præsertim) elongatis, branchiis 16-radiatis.

Doris Elfortiana, *Blainville, Bull. des Sciences* (1806), p. 95.

Doris Leachii, *Blainville, Dict. des Sciences Nat.* xiii. 450.

Color flavicans, rufescens aut albidus. Long. corp. 1 poll.

Habitat in Caledoniæ mari; in Freto Forth dicto vulgatissima.

Body convex, the warts papillated; the lateral ones (especially those behind) elongated; branchiæ with sixteen rays. Colour yellowish, lutescent, or whitish. Length an inch.

Inhabits the Scotch seas, and is very abundant in the Frith of Forth.

6. **Doris marginata.**

D. ovata, depressa, lævis, pallio lateribus diaphanis.

Doris marginata, *Mont. Trans. Linn. Soc.* vii. t. 7. fig. 7.

Color albidus aut pallidè sulphureus, carneo tinctus. Long. corp. $\frac{1}{4}$ poll.

Habitat in Danmoniæ Australis mari, rarior.

Body ovate, depressed, smooth; the sides of the mantle diaphanous. Colour whitish, or pale sulphur-yellow, tinctured with flesh-red. Length $\frac{1}{4}$ of an inch.

It occurs occasionally on the south coast of Devon.

7. **Doris nodosa.**

D. elongata, dorso tuberculis octo in lineas duas laterales digestis, pallio lateribus tenuissimis, branchiis 12-radiatis.

Doris nodosa, *Mont. Trans. Linn. Soc.* ix. t. 7. f. 2; *Blainv. Dict. des Sciences Nat.* xiii. 453.

Color albus, branchiis nonnunquam viridibus. Long. corp. $\frac{1}{2}$ unc.

Body elongate, the back with eight tubercles arranged into two longitudinal lines, one on each side, the sides of the mantle very thin, the branchiæ with twelve rays.

This rare species is sometimes found on the southern coast of Devon, in estuaries.

8. DORIS COCCINEA.

D. dorso tuberculato, tentaculis dorsalibus ad apices truncatis, stylo retractili instructis, branchiis 10-radiatis.

Doris coccinea, *Montagu MSS.*

Color coccineus. Long. corp. 1 poll.

Habitat in Danmoniæ littoribus, rarissima.

Back tuberculated, upper tentacula with their points truncate and furnished with a retractile style, branchiæ with ten rays. Colour vivid red. Length an inch.

Inhabits the coasts of Devon and Cornwall, but is extremely rare.

Genus 6. CUFÆA.

Dorsum ante tentacula dorsalia appendicibus 4 acuminatis carnosis, et pone branchias appendicibus 2 ad medium plerumque crassioribus instructum. *Pes* posticè acuminatus.

Back before the dorsal tentacula, with four acuminated fleshy appendages, and with two other appendages, which are generally thicker towards their middle, situated behind the organs of respiration. Foot acuminated behind.

This genus is allied to the *Polycera* of Cuvier, from which it differs in not having the posterior appendages membranaceous, and protecting the branchiæ in time of danger.

1. CUFÆA FLAVA.

C. albida, rufo aut citreo varia vel sparsa, appendicibus anticis citreis.

Doris flava, *Mont. Trans. Linn. Soc.* vii. 79. t. 7. f. 6.

Habitat in Danmoniæ mari, rarissima.

Colour whitish, variegated or sprinkled with red or orange, the anterior appendages orange-coloured. Length about half, sometimes three-quarters of an inch.

This very rare species was first discovered in Bigbury Bay, by Montagu; it was afterwards taken in Plymouth Sound, by Mr. Cranch; below Padstow, by myself, and in Bideford Bay, by Mr. J. Raddon.

FAMILY II. EOLIDIADÆ.

Polybranches, *Blainville.*

Branchiæ latera dorsi imbricantes. *Anus* et *Sexuum Organa* lateralia, dextra, aperturâ communi. *Pallium* non dilatatum. *Tentacula* duo labialia; quatuor dorsalia, anteriora, subannulata. *Os* labio crasso. *Mandibulæ* nullæ.

Branchiæ imbricating the sides of the back. Anus and sexual organs situated on the right side, and furnished with a common external aperture. Mantle not dilated. Tentacula two labial; four dorsal, slightly annulated. Mouth with a thick lip, and no mandibles.

The presence of the labial tentacula has induced me to place this family after *Dorididæ,* and before *Tritoniadæ.*

The Chevalier Cuvier is of opinion that *Doris cærulea* of Montagu (Trans. Linn. Soc. vii. t. 7. fig. 4) and *Doris longicornis* of the same author (vol. ix. t. 7. fig. 1) belong to the genus *Eolidia*; whilst the latter species is referred by Blainville to the genus *Carolina* of Bruguière. As I have seen neither of these animals in a living state, it will be most prudent to say nothing on the subject.

Genus 7. EOLIDIA.

Eolidia, *Cuvier, Blainville.*
Eolis, *Cuvier, Lamarck.*

Branchiæ foliaceæ. *Tentacula* teretiuscula, acuminata, ad apices acuta. *Corpus* posticè acuminatum.

Tentacula rounded acuminate, their points acute. Body acuminate behind. Heart situated in the back, between the branchiæ.

This genus was instituted by Cuvier, in 1798.

1. **Eolidia Cuvieri.** Plate VII. fig. 3.

E. lævis, branchiis acuminatis.
Doris papillosa, *Müll. Zool. Dan.* 99. 1–4; *Encycl. Méth. Vers.* pl. 82. fig. 12.
Eolis, *Cuv. Ann. du Mus.* vi. 433. pl. 61. figs. 12, 13.
Tritonia papillosa, *Mont. Trans. Linn. Soc.* xi. 16. t. 4. fig. 3.
Eolidia papillosa, *Cuv. Règ. Anim.* ii. 393.
Eolis Cuvieri, *Lam. H. N. des An. sans Vert.* vi. 302.
Eolidia Cuvieri, *Blainv. Dict. des Sc. Nat.* xiv. 558.
Habitat in mari Britannico satis frequens.

Body and branchiæ smooth, of a pale brown colour, more or less intense, according to the position of the animal. The branchiæ, when dilated with fluid, are rounded. Length 2, rarely 3 inches.

This species is found on most of our rocky coasts; it is far from being uncommon in the Frith of Forth, Bigbury Bay, Torbay, Plymouth Sound, Sandgate in Kent, and in Bantry Bay, Ireland.

FAMILY III. TRITONIADÆ.

Branchiæ laterali-dorsales, ramosæ. *Anus* postico-lateralis, dexter. *Pallium* aliquantulum dilatatum. *Sexuum Organa* antico-lateralia dextra. *Tentacula* 2 dorsalia, retractilia. *Os* mandibulis duabus corneis armatum.

Branchiæ branched, placed on the sides of the back longitudinally. Anus on the right side posteriorly. Mantle slightly dilated. Sexual organs on the right side anteriorly. Tentacula two, dorsal one retractile. Mouth armed with two horny mandibles.

Synopsis Generum.

Branchiæ plurimæ, sessiles. Corpus granulosa posticè angustius. Tentacula ramosa	8. **Tritonia.**
Branchiæ decem, pedunculatæ. Corpus posticè acuminatum. Tentacula simplicia ..	9. **Idulia.**

Genus 8. TRITONIA.

Tritonia, *Cuvier, Lamarck.*

Corpus posticè angustius. *Branchiæ* plurimæ, sessiles. *Labia* lata, membranacea.

Body narrower behind. Branchiæ many, sessile. Lips membranaceous and broad.

The anatomical structure of this genus has been well investigated by Cuvier, from whose observations it appears that the brain is composed of four lobes; the intermediate lobes are large, the lateral ones small and rounded. The anterior aspect of the central lobes receives two pairs of nerves from the integuments of the mouth; a third from the dorsal tentacula; the fourth from the situation of the eye; the fifth and sixth from the muscles of the jaws; and the other pairs, to the number of six or seven, arise from the lateral parts, and general muscular covering of the body, and join the posterior and lateral aspects of the brain. Cuvier could not discover any other ganglia, nor could he satisfy himself of the completion of the nervous collar round the œsophagus.

The jaws are horny, and, according to Cuvier, resemble shears. Behind them is situated a lip armed with sharp points turning backwards, whose office is to convey the broken food into the œsophagus, which is membranaceous and longitudinally folded within. The stomach is membranaceous, slightly dilated, and imbedded in the liver. The duodenum is short, striated longitudinally within, which, after making one bend, terminates in the anus, situated behind the middle of the right side.

1. TRITONIA HOMBERGII. Plate VII. fig. 2.

T. dorso tuberculato; tuberculis inæqualibus irregulariter rotundatis, lateribus lævibus.

Tritonia Hombergii, *Cuv. Ann. du Mus.* i. 483. pl. 31. fig. 1, 2; *Mém. sur les Moll.* fig. 1, 2; *Lam. H. N. des Anim. sans Vert.* vi. 304.

Long. corp. 1–2½ poll.

Habitat in Danmoniæ mari, rarissima.

Back slightly convex, of a grey colour, sculptured into unequal irregularly rounded tubercles; the sides smooth, the right with two tubercles, one before, the other behind the middle; both are pierced, to serve the purposes mentioned in the character of the family. Length from one to two and half inches.

This very rare species has been taken in deep water, off Falmouth, three or four times only, by Mr. J. Cranch.

The animal figured has unfortunately lost its respiratory organs, which is the case with all my specimens; but as it has never been given before as a British production, I thought that I ought not to withhold the valuable fragment that remains, since it exhibits all the specific characters.

As this part of the synopsis was on the point of being printed, I received from Mrs. Griffiths, who found them at Torquay, three very fine specimens of this animal, the largest of which was three inches in length and two in breadth; and I very much regret that my time will not permit me to enter into a full detail of its internal structure.

The mouth is composed of a muscular mass, and is furnished with two hard horny jaws, and a spiral tongue.

The central mass of the nervous system consists of four ganglia, placed close to each other, and are brought into communication with two other (sympathetic) ganglia by branches from the nervous collar.

The œsophagus is long and thin, longitudinally elevated internally. The salivary glands are granulose; one is placed on each side of the œsophagus. The stomach is membranaceous, very slightly dilated, and is partially embraced by the liver, which is very small. The rectum is elevated internally like the œsophagus.

Genus 9. IDULIA.

Corpus posticè acuminatum. *Branchiæ* decem, pedunculatæ. *Tentacula* simplicia.

Body acuminated behind. Branchiæ ten, pedunculated. Tentacula simple.

1. IDULIA MACULATA.

I. flavicans carneo-maculata, branchiarum pedunculis ad apices sexdentatis.

Doris maculata, *Mont. Trans. Linn. Soc.* vii. t. 7. fig. 8.

Long. ½ poll.

Habitat in Danmoniæ mari rarissima.

Yellowish spotted with flesh-red, points of the branchial peduncles with six teeth. Length half an inch.

Inhabits the coast of Devonshire, but is extremely rare.

ORDER II. STEGOBRANCHIA.

Tectibranches, *Cuvier*.

Branchiæ dextræ, dorsales aut laterales, sub pallii reflectione tectæ. *Testa* interna, externa, aut nulla. *Sexus* hermaphroditus. *Anus* dexter.

Synopsis Familiarum.

Fam. 1. PLEUROBRANCHIDÆ. *Branchiæ* inter pallii et pedis junctionem affixæ. *Pallium* undique dilatatum. *Tentacula* duo, involuta, labialia. *Pes* marginibus dilatatis. *Testa* subcalcarea aut nulla.

Fam. 2. APLYSIADÆ. *Branchiæ* dextro-dorsales, operculo testigero (ad sinistram quasi cardine instructo) tectæ. *Pallium* utrinque supra operculum in membranam dilatatum, quod ad occiput aut ad capitis dextram est productum, syphonem respiratorium efformans. *Tentacula* 4 involuta; 2 labialia; 2 antico-dorsalia. *Os* aperturâ verticali. *Pes* corporis longitudinem æquans aut aliquantulum superans, non dilatatus. *Testa* cornea, interna.

Fam. 3. MARSENIADÆ. *Branchiæ* dextræ testâ tectæ. *Pallium* testam omnino tegens, undique dilatatum ad apicem emarginatum. *Tentacula* 2 labialia, compressa, externè ad basin dilatata, oculigera. *Os* tubulosum, rotundum. *Pes* marginibus attenuatis, anticè transversim plicatus, posticè liber. *Testa* calcarea, spira subdepressa.

Fam. 4. Bulladæ. *Branchiæ* dextræ, sub pallii dilatatione tectæ. *Pallium* super branchias dilatatum. *Tentacula* nulla. *Labium* superius supra dorsum productum, lateraliter dilatatum, discum efformans. *Pes* latissimus, cum labio inferiore penitus coalescens, lateraliter valdè dilatatus latera amplectens, posticè ultra corporis medium productus. *Testa* involuta, spira sæpius abscondita.

Branchiæ situated on the right side of the back, or on the right side of the animal, and covered by a reflection of the mantle. Shell external, internal, or entirely wanting. Anus on the right side. Sex hermaphrodite.

All the genera of this Order are marine.

FAMILY I. PLEUROBRANCHIDÆ.

Branchiæ inter pallii et pedis junctionem affixæ. *Testa* fragilis. *Tentacula* duo involuta, labialia. *Pes* marginibus dilatatis. *Pallium* undique dilatatum, testam tegens. *Anus* et *Sexuum organa* anteriora, dextra.

Synopsis Generum.

Os tubulosum. *Labium* crassum, supra ac infra lamellâ simplici instructum: lamella superior major: inferior ex pedis reflectione efformata. *Pallium* integrum pede multo latius. *Branchiæ* elongatæ. *Pes* posticè angustior, integer. *Testa* calcarea, oblonga, aperta	10. Cleantus.
Os reconditum, lamellâ crassiusculâ utrinque anticè cornutâ, supernè instructum. *Pallium* pede multo angustius, anticè et posticè emarginatum. *Branchiæ* valdè elon-	

gatæ. *Pes* posticè rotundatus, integer.
Testa subcalcarea, tenuissima subreflexa. 11. OSCANIUS.

Branchiæ attached between the junction of the mantle and foot. Two labial tentacula, which are involute. Margins of the foot dilated. Mantle dilated on every side, covering the shell, which is found in all the indigenous genera, and is more or less calcareous.

Pleurobranchus Peronii of Cuvier is the type of his genus *Pleurobranchus,* on which this family is founded.

Genus 10. CLEANTUS.

Os tubulosum. *Labium* crassum, supra ac infra lamellâ simplici instructum : lamella superior major ; inferior ex pedis reflexione efformata. *Pallium* integrum pede multò latius. *Branchiæ* elongatæ. *Pes* posticè angustior, integer. *Testa* calcarea, oblonga, patula.

Mouth tubulose. Lip thick, furnished above and below with a simple lamella ; the upper lamella largest ; the under one formed by a reflection of the foot. Mantle entire and much broader than the foot. Branchiæ elongated. Foot narrower at its posterior extremity, and entire. Shell calcareous, oblong, spreading.

1. CLEANTUS MONTAGUI. Plate VII. fig. 4–7.

C. testâ concentricè striatâ ; striis antiquatis.
Bulla Plumula, *Mont. Test. Brit.* 214. t. 15. fig. 9 ; *M. & R. Trans. Linn. Soc.* viii. 123 ; *Turt. Conch. Dict.* 25.
Animal flavicante-luteum, dorso vesiculoso.
Habitat in Danmoniæ Australis littoribus, haud infrequens.

Shell concentrically striated, the striæ antiquated. Colour without, reddish or reddish-brown ; pearly white or pearly within. Young shells are often pearly on their outside. The antiquated striæ are very distinctly impressed on the inner surface.

Length nearly half an inch ; sometimes, but very rarely, as large as the one figured in Pl. VII.

Animal yellowish, inclining to luteous. Back vesiculose.

This species is by no means uncommon at the mouth of the Yalm river; at Salcombe; in the Kingsbridge Estuary, near the Saltstone; and in Millbay, near Plymouth.

I have named this species after Montagu, by whom it was first discovered; and have rejected the term *Plumula,* since it is equally applicable to all the species of Pleurobranchidæ.

Genus 11. OSCANIUS.

Os reconditum, lamellâ crassiusculâ, anticè utrinque cornutâ, supernè instructum. *Pallium* pede multo angustius, anticè et posticè emarginatum. *Branchiæ* valdè elongatæ. *Pes* posticè rotundatus, integer. *Testa* subcalcarea, tenuissima, ad basin sinistrorsum subreflexa.

Mouth concealed, furnished below with a thickish lamella, which has a horn-like appendage on each side, anteriorly. Mantle much narrower than the foot, notched anteriorly and posteriorly. Branchiæ very much elongated. Foot entire, rounded behind.

Shell somewhat calcareous, very slender, the left side at its base slightly reflexed.

1. OSCANIUS ARGENTATUS.

O. testâ argenteo-nitente subcarneâ, concentricè crenatâ.

Bulla membranacea, *Mont. Trans. Linn. Soc.* xii. 185. t. 12. fig. 4; *Turt. Conch. Dict.* 25.

Lamellaria membranacea, *Mont.* loc. cit. fig. 3, pessima.

Animal pallio supernè verrucoso, verrucis nonnullis longioribus conicis.

Habitat in æstuario prope Salcombe in Danmoniâ Australi, rarior.

Shell pale flesh-red with a silvery lustre, concentrically wrinkled.

Mantle varied with brownish streaks, its dorsal aspect verrucated; some of the protuberances larger than the rest, and conic. Lower aspect of the foot pale luteous, more or less spotted with grey.

Length of the animal two inches; of the shell an inch and quarter.

This species has hitherto been found in the Kingsbridge Estuary, near the Saltstone, and has been recently observed likewise in Torbay by Mrs. Griffiths, who, with her usual liberality, communicated to me a fine specimen of its shell.

FAMILY II. APLYSIADÆ.

Branchiæ dextro-dorsales, operculo testigero (ad sinistram quasi cardine instructo) tectæ. *Pallium* utrinque supra operculum dilatatum, quod ad occiput aut ad caput dextrum est productum, syphonem respiratorium, inchoatum efformans. *Tentacula* 4 involuta : 2 labialia ; 2 antico-dorsalia. *Os* aperturâ verticali. *Pes* corporis longitudinem æquans aut paululùm superans, non dilatatus. *Testa* cornea, interna, posticè ad dextram emarginata.

Synopsis Generum.

Sypho respiratorius usque ad dextrum caput productus. *Testa* subpostica	12. APLYSIA.
Sypho respiratorius ad capitis basin, posticè ductus. *Testa* subantica	13. ESMIA.

Branchiæ situated on the right side of the back, covered by an operculum or lid, which is joined to the left side as with a hinge. Mantle dilated above the operculum on each side, and produced to the hinder base or right side of the head, forming a rudimentary syphon for respiration. Tentacula four involuted : two labial ; two anterior-dorsal. Opening of the mouth vertical. Foot as long or a little longer than the body, not dilated. Shell horny, internal, enveloped by the skin of the animal, and in no degree adhering to it.

Genus 12. APLYSIA.

Lepus marinus, *Plinii, Rondeletii.*
Laplysia, *Linné, Bruguière, Lamarck.*
Aplysia, *Gmelin, Duméril, Cuvier.*

Sypho respiratorius usque ad caput dextrum productus. *Testa* subpostica. *Pes* posticè subproductus.

The syphon produced to the right side of the head. Shell situated rather behind the middle of the back. Foot slightly produced behind.

This animal was likened to a *hare* by the ancients, who affirmed that it was endowed with highly poisonous qualities. This fable was believed by Linné, who named the only species known in his time, *depilans*, a term which was applied by Pennant to the British Aplysia, the smell of which he asserts to be extremely nauseous.

The *Aplysiæ*, as Ælian has observed, bear a general appearance in their external form to a *Pomatia* divested of its shell. The head is situated at the extremity of a short neck, which is retractile. The mouth is vertical; the lip on each side is produced into a tentaculum. At the anterior bases of the dorsal tentacula are situated the eyes. Underneath the right side of the operculum is situated a sort of gland, which secretes the purple fluid for which it is so celebrated. The anus terminates at the hinder extremity of the attached part of the lid. The gland which secretes the supposed poisonous liquor opens between the anterior attachment of the lid and the right dilatation of the mantle, by an aperture common to it and to the oviducts.

The anatomical structure has been examined by Cuvier, and is very interesting in a physiological point of view.

The brain is situated over the œsophagus, having a three-lobed ganglion on each side, brought into connexion with it by three nerves. These ganglia are connected by a nerve which passes round the œsophagus and completes the nervous collar; and again by another nerve which embraces the great arterial trunk. The brain is united to a third ganglion, situated under the fleshy mass of the mouth, by two nerves. The lateral ganglia are again brought into connexion by a nerve which passes round the great artery. The suboral ganglion receives four nerves on each side; one pair from the œsophagus and salival glands, and three from the muscles of the mouth. The brain itself receives three pairs of nerves from the head: two receive branches from the male organ, and from the dorsal tentacula; the latter receive the optic branch. The lateral ganglia receive several pairs of nerves from the muscles and general covering of the body. The intestines and liver send their nerves to a kind of sympathetic ganglion, from which they again pass to join the lateral ganglia.

The heart is oval, and its parietes very thin, its inner surface furnished with muscular pillars, which cross in every direction. At its junction with the auricle, the passage is guarded by two mitral valves. The great artery, at its exit, is divided into great branches: the first passes out from the pericardium on the left side, and enters the abdomen, distributing its branches to the liver and intestinal canal; the second branch turns to the right, and gives a branch to the stomach and to the œsophagus, and then passes through the pericardium on the right, sending branches to the right side, to the lower parts of the mouth, and to the foot. That part of the second great branch within the pericardium is furnished with two crests, composed of vessels which are given off by it, and return into it. Cuvier supposes these vessels may secrete a liquor with which the pericardium is filled. All the veins return the blood into two muscular vessels, which convey it to the branchiæ, from whence it is returned to the auricle, and from thence is passed to the ventricle.

Mouth without jaws; its lips furnished with a thin cartilaginous plate, which is smooth; and a cartilaginous tongue, armed with hooks, which turn backwards. At the anterior extremity of the œsophagus, the ducts of the salival glands open on each side.

The œsophagus is straight, and soon dilates into a pouch lined with thin membranaceous matter, without appearance of glands. This is followed by a short cylindric gizzard, with strong muscular sides, bearing pyramidal and rhomboidal protuberances, composed of semicartilaginous matter*, which have but a slight attachment to the surface. The third stomach, which is as large as the first, has its surface on one side armed with curved spines, which are not more strongly attached than the protuberances in the second stomach. Near the pyloric extremity are orifices between two membranaceous crests, the one of the cæcum, the other from the liver. The cæcum is as long as the second stomach, is imbedded in the liver, and simple in its internal surface. The intestinal canal, after leaving the third stomach, is simple in its structure, equal in its diameter; and after making two turns amongst the lobes of the liver, terminates in the anus.

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* These parts were remarked by Apuleius, who was accused of magic, from having been seen with these animals in his possession. *Apul. Apol.* 47.

The food of the *Aplysiæ* consists of marine plants, and minute testaceous, as well as naked mollusca.

1. APLYSIA VARIANS.

A. corpore subovato, nigricante aut brunneo-purpureo immaculato, intensè-purpureo aut brunneo-purpureo albido maculato, vel purpureo-brunneo nigro maculato.

Laplysia depilans, *Penn. Brit. Zool.* iv. 42. t. 21. fig. 21.

Habitat in Angliæ Occidentalis mari non infrequens.

Body somewhat ovate, blackish, or brown purple, without spots; deep purple, or brown purple, with white spots; or purple brown, spotted with black. Length from two to four inches.

Shell longer than broad, longitudinally rayed, rather more than an inch in length, and three quarters broad.

This species is common on the coasts of Cornwall, Devon, and Dorsetshire, and is found amongst the rocks, or is taken by the nets of fishermen. It crawls very slowly amongst the rocks, and has the power of swimming by successive undulations of the foot, and of creeping on the surface of the water with its foot uppermost, like the genera of Limnadæ.

Genus 13. ESMIA.

Sypho respiratorius ad capitis basin posticè ductus. *Testa* subantica. *Pes* posticè non productus.

Syphon produced to the hinder part of the base of the head. Shell situated somewhat anteriorly. Foot not produced behind.

1. **Esmia Griffithsiana.** Tab. VII. figs. 8–10.

E. Corpore ovato-hæmisphærico, syphone nigro marginato.
Habitat in Danmoniæ Australis mari.
Testa elongato-scaphiformis.

Body ovate-hemispheric, the syphon edged with black. Shell elongate, boat-shaped. Length of the animal about half an inch; of the shell about a quarter.

Esmia Griffithsiana, the species serving as the type of this new and highly important genus, was discovered amongst the rejectamenta taken up by a trawl in Torbay, and was communicated to me, along with a vast number of interesting sea animals found on that coast, by Mrs. Griffiths, after whom I have named it.

FAMILY III. MARSENIADÆ.

Branchiæ sinistrâ testâ tectæ. *Pallium* testam omnino tegens, undique dilatatum, anticè emarginatum. *Tentacula* duo labialia compressa, externè ad basin dilatata, oculigera. *Os* tubulatum, rotundum. *Pes* marginibus attenuatis, anticè transversim plicatus, posticè liber. *Testa* calcarea, spira subdepressa.

Branchiæ situated on the left side, covered by the shell. Mantle entirely covering the shell, much dilated on every side, notched anteriorly. Tentacula two, arising from the lips; their external base dilated, and bearing eyes. Mouth tubular and round. Margins of the foot attenuated, transversely folded anteriorly, free behind. Shell calcareous, with the spire somewhat depressed.

Of this family we possess but one genus, which has been placed with the Bullæ by British Zoologists, to whom alone it seems to have been known.

Genus 14. Marsenia.

Tentacula compresso-conica. *Testa* auriformis, patula.

Tentacles compressed-conic. Shell ear-shaped, gaping, spire somewhat depressed.

1. **Marsenia producta.**

M. testâ elongatâ, spirâ elevatiusculâ.

Bulla haliotoïdea, *Mont. Test. Brit.* 211. t. 7. fig. 6, testâ.
Lamellaria tentaculata, *Mont. Trans. Linn. Soc.* xi. 186. t. 12. figs. 5–6.
Bulla tentaculata, *Turt. Conch. Dict.* 25.
Habitat in Danmoniæ æstuariis rarior.

Shell elongate, the spire slightly elevated, transversely striated finely, but irregularly. Colour pearly white, without iridescence.

Animal yellowish, with brighter spots of the same colour. Mantle with thin margins. Tentacula elongate. Length of the animal an inch; of the shell three-quarters of an inch.

Inhabits estuaries on the coasts of Devon and Cornwall; it is found occasionally in the Kingsbridge Estuary, near the Saltstone; and at the mouth of Padstow Harbour. Dr. Goodall has found it at Weymouth.

Although Montagu distinguished the animal of this species from that of the following, he nevertheless figured the shell of this species for that of *M. complanata.*

2. MARSENIA COMPLANATA.

M. testâ ovatâ depressâ, spirâ deplanatâ.
Habitat in Britanniæ littoribus arenosis, passim.

Shell ovate depressed, the spire not elevated. Animal yellowish or rufous-brown, sometimes reddish. Tentacula of a moderate length. Length of animal three-quarters of an inch; of the shell rather more than half an inch. Colour of the shell similar to that of *M. producta,* and its sculpture the same.

Inhabits most of the sandy coasts of Great Britain, and is very common.

As no British conchologists seem to have distinguished differences in the shells of the above species of *Marsenia,* I conclude that they have never met with both of them in the same cabinet; and as all their figures are very incorrect, I am under the painful necessity of refraining from quotation.

FAMILY IV. BULLADÆ.

Acera, *Müller.*
Bulla, *Cuvier.*

Branchiæ dextræ, sub pallii dilatatione tectæ. *Pallium* super branchias reflexo-dilatatum. *Tentacula* nulla. *Labium superius* supra dorsum productum, lateraliter dilatatum, discum efformans. *Pes* latissimus, cum labio inferiore penitus coalescens, lateraliter valdè dilatatus latera amplectens, posticè ultra corporis medium productus. *Testa* involuta, spira sæpius abscondita. *Os* verticale.

Stirpium et Generum Synopsis.

Stirps 1. Testa sub pallii reflectione recondita.

Spira abscondita, apertura tota hians, umbilicus nullus.	15. BULLÆA.

Stirps 2. Testa nuda, externa.

Testa dura, posticè valdè attenuata; spira abscondita; apertura anticè valdè hians; umbilicus nullus	16. SCAPHANDER.
Testa duriuscula, ovato-ventricosa; spira abscondita; apertura anticè hians; umbilicus nullus.	17. HAMINÆA.
Testa tenuis, flexilis, cylindraceo-ventricosa; spira canaliculata, plana; apertura anticè hians; umbilicus nullus . .	18. EUCAMPE.
Testa solida; apertura anticè paululum hians; spira immersa; umbilicus perforatus	19. ROXANIA.

All the Bulladæ are marine. Their branchiæ are foliaceous; the leaf-like processes are again divided into folia. Mouth vertical. No tentacula. Upper lip produced over the back, dilated laterally, forming a disc. Mantle dilated and reflexed over the branchiæ. Foot very broad, united thoroughly with the lower lip, very much dilated laterally, embracing the sides of the body, and produced posteriorly beyond the middle. Shell involute, its spire generally concealed.

Their mouth is furnished with two horny lamellæ like the Aplysiadæ. The anterior part of the body, which is covered by the labial disc, contains the brain, the salival glands, and

the male organs of generation. The intestines, and the liver which surrounds them, are placed under the shell. The ovaries occupy the region of the spire, and their duct passes out on the right side, near the exit of the male organ.

As I have not had an opportunity to examine all the genera of this family in a living state, I must refer to the admirable details contained in Cuvier's tenth memoir, entitled "Sur les Acères."

STIRPS I.

Genus 15. BULLÆA.

Bullæa, *Lamarck*.
Lobaria, *Müller*.

Testa fragilis, subpellucida, spira abscondita, apertura tota hians, umbilicus nullus. *Labium superius* ad dorsi fere medium productum. *Ventriculus* testis tribus calcareis instructus: duabus lateralibus elongato-triangularibus; superiore acuto-rhomboïdali, omnibus externè concavis. *Penis* longissimus, filiformis.

Shell thin, nearly pellucid, its spire hidden, the whole aperture gaping, no umbilicus. Upper lip produced almost to the middle of the back. Stomach armed with three externally-concave calcareous shells; the two lateral ones elongate-triangular; the upper one acutely rhomboidal.

This genus was first noticed by Fabius Columna, in his tract de Purpura, and afterwards by Janus Plancus, who named it *Amygdala marina* (*Sea Almond*), and figured its stomach.

The dilated lip, the foot embracing the two sides, and the hinder part containing the shell, give to the animal a quadrilobate appearance, which suggested the name *Lobaria* to Müller, who did not perceive its affinity with the other members of this family.

1. BULLÆA PLANCIANA.

B. testâ subrotundâ, transversim striolatâ.

Bulla aperta, *Pult. Cat. Dorset.* 40. t. 22. fig. 3; *Donov. Brit. Shells,* t. 120. fig. 1; *Mont. Test. Brit.* 208.

Amygdala marina, *Planc. de Conch. minus notis,* 22. t. 11. figs. E–I.

Bullæa Planciana, *Lamarck, Syst. des An. sans Vert.* 63.

Bulla, the Bubble, *Da Costa, Brit. Conch.* 30. t. 2. fig. 3.

Habitat in littoribus arenosis vulgaris.

Shell whitish and shining, somewhat round, slightly striated transversely. Length nearly an inch.

Bullæa Planciana is found on most of our sandy shores in considerable abundance, and is often thrown up alive. The colour of the animal is whitish, pellucid, sometimes speckled with pale brown, or blackish. That part which covers the shell is often streaked with opaque white. Length rarely more than an inch and a half.

All our writers have confounded the shell with the *Bulla aperta* of Linné, which inhabits the African coast, and is totally different from this species.

2. Bullæa Catena.

B. testâ elongatâ, externè transversim striatâ; striis elevato-punctatis, hinc catenam æmulantibus, aperturâ posticè acuminatâ.

Bulla Catena, *Mont. Test. Brit.* 215. t. 7. fig. 7; *M. and R. Trans. Linn. Soc.* viii. 122; *Turt. Conch. Dict.* 24.

Habitat in Danmoniæ, Hiberniæ et Cambriæ Australis littoribus, necnon in Freto Forth dicto, haud infrequens.

Shell elongate, transversely striated externally; the striæ with ovate elevated points, which give to the striæ the appearance of chains, the aperture acuminated behind. Colour white. Surface glossy. Length a quarter of an inch.

This elegant species, which has not yet occurred with its animal, inhabits the sandy shores of Devon, Cornwall, and South Wales. I observed it likewise in the Frith of Forth, and on every part of the southern coast of Ireland.

From Montagu's description, it is probable that his supposed variety, which I have never seen, may prove to be another species of this, or of some other genus of the family.

STIRPS II.

Genus 16. SCAPHANDER.

Scaphander, *De Montfort.*

Testa dura, posticè valdè attenuata; spira abscondita; apertura anticè valdè hians; umbilicus nullus.

Ventriculus testis tribus calcareis, magnis armatus: duabus lateralibus majoribus, æqualibus, compresso-reniformibus, externè concavis, internè convexis; superiore elongatâ, externè canaliculatâ, internè acuminatâ. *Penis* cylindricus.

Shell hard, very much attenuated behind; the spire concealed; the aperture very widely gaping; no umbilicus.

Stomach armed with three large calcareous shells; the two lateral ones of which are compressed kidney-shaped, externally concave, convex within; the upper one elongate, externally channelled longitudinally, internally acuminated.

Gioëni, a Sicilian naturalist, described the stomach of this animal as a peculiar genus, which he named after himself, *Gioënia*, and even detailed its economy. Bruguière adopted this supposed genus, and has figured it in the Encyclopédie Méthodique, Vers, pl. 170, after *Pholas*, under the name *Gioëna.* Retzius called it *Tricla.* The imposition was discovered by Draparnaud, and was exposed by him in the Bulletin des Sciences for 1799, p. 113.

1. SCAPHANDER LIGNARIUS.

S. testâ longitudinaliter crenato-striatâ et transversim striolatâ.

Bulla lignaria, *Linn. Syst. Nat.* xii. i. 1184; *Penn. Brit. Zool.* iv. 116. t. 70. fig. 83; *Humphrey, Trans. Linn. Soc.* ii. 15. t. 2; *Mont. Test. Brit.* 205; *M. and R. Trans. Linn. Soc.* viii. 125; *Flem. Edinb. Encycl.* vii. 84.

Habitat in Angliæ Occidentalis mari vulgatissimè, præsertim in profundo.

Shell longitudinally striated; the striæ wrinkled, and transversely striated finely. Length of the shell two inches; of the animal two and a half or three inches. Colour of the shell externally dark, or pale reddish chestnut, more or less lineated longitudinally with whitish. A variety sometimes occurs which is of a pure white. Colour of the animal pale yellow, testaceous, or brownish; its surface smooth.

2. Scaphander catenatus.

S. testâ catenis longitudinalibus, parallelis sculptâ.
Habitat in Danmoniæ mari rarissimus.

Shell elegantly sculptured, the prominent parts representing a number of chains placed parallel to each other. Length one eighth of an inch.

The only specimen of this shell that I have seen was taken in the Plymouth Sound in deep water, by the late Mr. J. Cranch, who assured me that he had formerly met with a similar shell in Salcombe Bay. It has quite the air of the preceding species, excepting in the form of its second whorl, which is less inflated.

3. Scaphander Brownii.

S. testâ punctis excavatis, elongatis, acuminatis sulco connexis et in lineas longitudinales digestis, sculptâ.
Habitat cum præcedente.

Shell sculptured with excavated, elongate, and acuminate dots, which are connected by a groove, and arranged in longitudinal lines. These lines of excavated dots vary much in size; they are very regular towards the upper part of the spire, but are alternately wide and narrow at the other extremity, where the dots are often altogether obliterated, and their place supplied by a simple line.

A single specimen of this shell was found by Mr. Cranch in the Plymouth Sound, in a bed which contains the *S. lignarius* in great profusion. The Provost of Eton possesses two other specimens. Length a quarter of an inch.

Named after Captain T. Brown, who is now preparing a work on British Conchology.

Genus 17. Haminæa.

Testa duriuscula, ovato-ventricosa; spira abscondita; apertura anticè hians; umbilicus nullus. *Ventriculus* testis tribus subcorneis, æqualibus (entomolithem referentibus), inferis instructus. *Penis* gracilis ad apicem abrupte ovato-clavatus.

Shell hard, ovate-ventricose; the spire concealed; the aperture gaping anteriorly; umbilicus none. Stomach with three equal, somewhat horny, appendages, resembling the Dudley fossil (entomolithus) in form, and embracing its lower part.

1. HAMINÆA CUVIERI.

H. testâ longitudinaliter crebrò undulato-striatâ; striis crenatis.

Bulla Hydatis, *Pult. Cat. Dors.* t. 23. fig. 10; *Donov. Brit. Shells,* t. 88; *Mont. Test. Brit.* 217. vignette 1. fig. 1–6; *Cuv. Ann. de Mus.* xvi. t. 13. figs. 11–13; *Règne Anim.* ii. 400; *Turt. Conch. Dict.* 20; *Mont. Trans. Linn. Soc.* ix. 106. t. 6. fig. 1, animal.

Habitat in mari profundo. Apud Studland, Southampton, et Salcombe, sat frequens.

Shell with numerous longitudinal, undulated, wrinkled striæ. Colour of the adult, red-chestnut; of the young, pellucid green. The striæ on young shells are very faint, often obsolete, and rarely crenate.

The animal is incapable of retiring within its shell. When at rest, the shell is nearly concealed by the lateral and posterior dilatations of the foot. All the upper parts and dilatations of the foot are of a testaceous colour, tinted with orange, or passing into yellowish brown, and speckled with black or purplish brown. In Montagu's figure in the Linnæan Transactions, are represented two spots, near the centre of the reflected upper lip, which the author believed to be the eyes. This can be made out only by dissection. Length of the shell one inch and a half; of the animal, three inches.

Inhabits most of our sandy coasts. It is tolerably abundant at Studland, Pool, Southampton, and Salcombe, and has been occasionally found in profusion at Weymouth, near Dunbar, and in Bantry Bay.

Bulla Hydatis, of Linné, belongs to a very different genus, and is figured by Gualtieri; I have therefore named this species after Cuvier, who has made us first acquainted with its anatomical structure.

2. HAMINÆA DILATATA.

H. testâ longitudinaliter et tenuiter strigosâ, aperturâ ad dextram posticè dilatatâ.

Shell longitudinally and finely striolated, the aperture on the left side posteriorly dilated.

I have seen but a single specimen of this shell, which was taken off Falmouth, and is evidently in its young state. It differs very essentially from the young of *H. Cuvieri*, which is very abundant, and so constant in its form, that I do not hesitate to give this as a very distinct species. Its length does not exceed half an inch.

3. HAMINÆA ELEGANS.

H. testâ elongatâ, longitudinaliter striatâ; striis simplicibus, aperturâ ad sinistram anticè peritremate marginato instructâ.

Habitat in Danmoniæ, et Cambriæ mari.

Shell elongate, striated longitudinally with simple striæ, the left side of the aperture anteriorly, with a margined peritreme. Length three-quarters of an inch.

My attention was first directed to this species by Mr. J. E. Gray, who received it from Devon. I have since obtained it from Tenby and Swansea, as well as from the Devon coast, and have observed it in many collections confounded with the young of *H. Cuvieri*.

Genus 18. EUCAMPE.

Testa tenuis, flexilis, cylindraceo-ventricosa; spira canaliculata, plana; apertura anticè hians; umbilicus nullus.

Shell thin, flexible, cylindric-ventricose; the spire canaliculate, flat; the aperture gaping anteriorly; umbilicus none.

1. EUCAMPE DONOVANI.

E. testâ longitudinaliter antiquato-striolatâ et subtransversim strigosâ; strigis subundulatis.

Bulla resiliens, *Donov. Brit. Shells,* t. 79.

Bulla akera, *Mont. Test. Brit.* 219; *M. & R. Trans. Linn. Soc.* viii. 125.

Habitat in mari, præsertim in æstuariis.

Shell with longitudinal, antiquated striolæ, and with somewhat transverse, slightly undulating striolæ.

Inhabits the sea, but is generally found only in estuaries. It has been observed at Pool, Weymouth, Southampton and Portsmouth; and is said to occur on the coasts of Devon.

Its animal is said to be very lively and active; it has not, however, been described in a correct or scientific manner.

Genus 19. ROXANIA.

Testa solida, oviformis; apertura anticè paulo hians; spira immersa; umbilicus perforatus.

Ventriculus testis nullis instructus.

Shell solid, egg-shaped; aperture gaping a little anteriorly; the spire immersed; umbilicus perforate.

I have examined an animal of this genus in a bad state of preservation, and found that its stomach, which was strong, and filled with the debris of minute shells, had not the slightest indication of the hard appendages found in its kindred genera, *Bullæa, Scaphander* and *Haminæa*. It is on this account that I have separated it from *Bulla*, the true type of which is *Bulla Ampulla*, from which it likewise differs in having an umbilicus, as well as in the general habit of the animal and shell.

1. ROXANIA CRANCHII. Tab. VII. fig. 11.

R. testâ crebrè punctatâ; punctis in strias longitudinales digestis, anticè et posticè longitudinaliter striatis; striis plerumque punctatis.

Habitat in Danmoniæ mari profundo, rarior.

Shell, with closely impressed dots, arranged into longitudinal striæ, anteriorly and posteriorly striated longitudinally; the striæ generally punctured. Length six-eighths of an inch.

This species was discovered by Mr. J. Cranch in deep water, off Falmouth, in 1815, and afterwards in the Plymouth Sound, from whence it has likewise been obtained by C. Prideaux, Esq.

Since writing the above, I have received an Irish specimen of the shell from my very liberal friend, the Provost of Eton.

ORDER III. SACCOBRANCHIA.

Pulmones, *Cuvier.*

Branchiæ saccum internè tegentes, non elevatæ. *Testa* nulla; interna; aut externa, spiralis vel capuliformis aut subconica. *Operculum* externum nullum. *Sexus* hemaphroditus.

Familiarum Synopsis.

* *Tentacula* 4: *superiora ad apicem oculigera.*

Fam. 1. Limacidæ. *Corpus* sæpius nudum, elongatum, supra anticè disco thoracico instructum. *Testa* sæpius interna, nunquam elevato-spiralis.

Fam. 2. Helicidæ. *Corpus* spirale. *Testâ* spirali tectum.

** *Tentacula duo.*

Fam. 3. Carychiadæ. *Corpus* spirale. *Testâ* spirali tectum. *Apertura* dentata.

Fam. 4. Limnadæ. *Corpus* sæpius spirale. *Testa* sæpius spiralis, sæpè depressa. *Aperturâ* inermi.

Fam. 5. Ancylidæ. *Corpus* ovato-aut elongato-conicum. *Testâ* conformi tectum. *Spira* inchoata.

The respiration of all the animals of this Order is performed by the lining of a sac, the entrance to which is a contractile trachea, formed from the mantle, and is opened or closed at the will of the animal, who ejects the air by the trachea when it has performed the purposes of respiration, and takes in a fresh supply through the same opening, which it then closes.

The body is either naked, or covered by a shell. In the first family, the Limacidæ, the shell is internal, and situated beneath a thoracic disc; is wanting entirely, or is replaced by a few obsolete shelly fragments. In the families Helicidæ, Carychiadæ and Limnadæ, the bodies are spiral, and are protected by a shell of the same form; whilst in Ancylidæ they are conical, and are covered by a conic shell.

The two first families, Limacidæ and Helicidæ, have four tentacula; the upper ones of which bear eyes at their extremities. All the other families have but two tentacula, which are furnished with eyes at their bases.

The sexes are hermaphrodite. The impregnation is mutual in Limacidæ, Helicidæ and Carychiadæ; whilst in Limnadæ, if there be but two individuals, one only is impregnated.

FAMILY I. LIMACIDÆ.

Corpus oblongum sæpius nudum. *Pes* abdominalis. *Caput* tentaculis quatuor; superioribus elongatis, ad apicem oculigeris; inferioribus brevissimis.

STIRPS I.

Corpus nudum anticè supra disco thoracico cor, branchiasque tegente, instructum. *Sexus* hermaphroditus. *Apertura lateralis* dextra, thoracica.

Synopsis Generum.

Apertura lateralis ante medium disci. *Dorsum* non carinatum, at *Glandulâ muciferâ,* terminali instructum	20. ARION.
Apertura lateralis pone medium disci. Dorsum posticè saltem carinatum, absque *Glandulâ muciferâ*	21. LIMAX.

Body of the *Limacidæ* generally naked, foot abdominal, head with four tentacula; the upper ones elongated, bearing the eyes at their extremities; under ones very short.

Those of the first stirps have their body naked, the anterior and upper part being furnished with a thoracic disc, covering the heart and respiratory organs. The sexes hermaphrodite. The lateral aperture on the right side of the thorax.

The animals of this family are indiscriminately named *Slugs*.

The mouths of these animals are furnished with a horny concave palate, armed with a single tooth or process, and a cartilaginous elastic tongue, transversely grooved and serrated.

The œsophagus is moderately long ; the stomach membranaceous, bipartite, longitudinally elevated ; the intestine with two curvatures. Salivary glands of a moderate size, situated one on each side of the œsophagus, and terminating in a duct on each side of its orifice. Liver five-lobed, embracing the windings of the intestine. Each lobe having its own gall-bladder, the three anterior of which send their ducts to the anterior extremity of the duodenum by a common tube, formed by their coalescence, the two posterior ones, by a similar tube, to the same part.

The central mass of the nervous system, which is somewhat bilobate, receives several nerves from the mouth and its vicinity ; one from each upper tentaculum ; one from each eye. The organs of generation, on the right side, form a plexus ; and send their nerves, by a common trunk, to the central mass. The two œsophageal nerves unite and form a (sympathetic) ganglion, which receives two nerves from the course of the œsophagus. The nerves of the foot join the lower part of the inferior ganglion.

Genus 20. ARION.

Arion, *Férussac.*
Limax, *Auctorum.*

Apertura lateralis ante disci thoracici medium. *Apertura branchialis* dextra, anterior. *Dorsum* non carinatum, *Glandulâ muciferâ* terminali instructum. *Testa* nulla integra. *Corpus* elongato-subovale, semicylindricum, anticè et posticè obtusum. *Thorax* anticè præsertim rugulosus. *Dorsum* et *Latera* tuberculis oblongis et subverrucosis, sulcisque confluentibus sculpta. *Pes* a corpore sulco divisus, lateribus latis.

Lateral aperture placed before the middle of the thoracic disc. Branchial aperture on the right side anteriorly. Back not carinated ; its extremity furnished with a mucous gland. Shell rudimentary, composed of loose fragments. Body elongate, inclining to oval, semicylindric, anteriorly and posteriorly obtuse. Thoracic disc roughish, especially anteriorly. Back and sides sculptured with oblong subverrucose tubercles and confluent grooves. Foot divided from the body by a groove; its sides wide.

The *Ariones* were confounded with the *Limaces* or *Slugs* by all naturalists, until the distinctions were pointed out by De Férussac, in his valuable and splendid work on the Land and Freshwater Mollusca.

During the day they retire into shaded places, or lurk beneath the branches of trees, or under the herbage on the ground; and in the evening, as well as in cloudy weather, they wander about in search of their food, consisting of vegetable matter, which they devour with great voracity. It is stated that they eat also putrid animal substances and excrements. Their movement is very slow.

They have been observed to devour the mucus, secreted by the gland, at the extremity of their body.

The lateral aperture contains the termination of the rectum, which is very near to the orifice of the respiratory sac, as well as the orifices of generation, which open beneath that of respiration.

1. ARION EMPIRICORUM. Plate VIII. fig. 1–2, var. ε.

A. ater, niger, fuscus, rufescens, flavidus aut albidus, margine laterali concolore, luteo, coccineo aut croceo simplici, vel verticaliter nigro-lineato.

Arion Empiricorum, *Féruss. Hist. des Moll.* i. 60.

Var. α. Ater, niger aut fuscus, margine laterali concolore.
Féruss. H. des M. i. pl. 2. fig. 1.
Limax ater, *Lister, Phil. Trans.* ix. p. 96; *Linn. Syst. Nat.* xii. i. 1081; *Penn. Brit. Zool.* iv. 40; *Drap. Hist. Moll.* 122. pl. 9. fig. 3.

Var. β. Rufus, aut subrufus, margine laterali concolore.
Limax rufus, *Linn. Syst. Nat.* xii. i. 1081; *Penn. Brit. Zool.* iv. 40.
Limax Empiricorum γ, *Féruss. H. des Moll.* 61. pl. 3. fig. 2.

Var. γ. Ater aut fuscus, margine laterali coccineo, croceo aut luteo, verticaliter aut obliquè nigro-lineato.
Féruss. H. des M. i. 61. pl. 2. fig. 2. var. δ.

Limax ater β et γ, *Drap. H. des M.* 122.

Var. δ. Niger, latere margineque laterali croceis, immaculatis.

Var. ϵ. Albidus, vel flavidus, margine laterali luteo simplici, aut nigro obliquè lineato.

Limax albus, *Müll. Swamp.* 61 ; *Linn. Syst. Nat.* xii. i. 1081 ; *Walch. Naturfor.* iv. 136. tab. 1. fig. 7 ; *Brug. Encycl. Méth.* pl. 84. fig. 3 ; *Bosc. H. N. des Vers,* i. 80.

Arion albus, *Féruss. H. des M.* i. 64. pl. 2. fig. 3.

Habitat in campis, ericetis nemoribusque passim ; var. ϵ in cretaceis.

Black, sooty-black, fuscous, rufescent yellowish or whitish, the lateral margin of the same colour, or luteous, coccineous or saffron-coloured ; simple ; or vertically or obliquely lineated with black.

Inhabits the fields, the commons, and the woods, throughout Great Britain. Length four or five inches. The excrements generally green or brown.

It is subject to a vast number of varieties, which have been described as different species by authors.

Variety 1. Black, sooty-black, or fuscous, the lateral margin of the same colour. This is by far the most common appearance. The *Black Slug* of Pennant.

Variety 2. Rufous, or slightly so, the lateral margin of the same colour. The *Brown Slug* of Pennant.

Variety 3. Black or fuscous, the lateral margin coccineous, saffron-coloured, or luteous, vertically or obliquely lineated with black.

Variety 4. Black ; the sides and lateral margin, saffron-coloured, without spots or lines.

Variety 5. Whitish or yellowish, the lateral margin simply luteous, or luteous obliquely lineated with black. This is the *Limax albus* of Linné, Müller, and other writers.

Head anteriorly blackish, striolated transversely, quite smooth between the tentacula, where it is marked with four grooved lines. Upper tentacula blackish tuberculated ; the tubercles elongated. Thoracic disc irregularly granulated. Back sculptured with elongate and intricate rugæ. Sides and lower part of the foot smooth ; latter part with transverse black lines.

The first variety is very generally diffused; the second is far from being common, and is found with var. 1; the third variety is very abundant in the West of England, especially on the borders of granite districts, where it is to be found beneath stones during the day. The fourth variety I found on a heath in Cornwall, near Bodmin, in company with var. 1 and 3. The fifth variety is confined to chalky districts: I have twice received it alive from Mr. J. E. Gray, who found them near Dartford, in Kent.

Had my friend De Férussac seen the modification of var. ε with oblique lines on the lateral margin, I am confident that he would then have considered his *albus* as a variety of *Empiricorum*.

2. Arion hortensis.

A. niger, longitudinaliter griseo-fasciatus; pede griseo luteo aut croceo.

Arion hortensis, *Féruss. Hist. des Moll.* 65. pl. 2. fig. 4–6.

Habitat in hortis, vulgaris.

Black, longitudinally banded with grey; foot grey, luteous, or saffron-coloured. Length two inches.

General form when in motion cylindric. Head smooth above, with two impressed longitudinal lines between the upper tentacula, which are rugose above. Thoracic disc granulated; the granules sometimes confluent. Back sculptured with elongate linear rugæ, which are tolerably regular, and slightly rounded before and behind. Foot perfectly smooth.

Viewed with the lens, the whole of the thoracic disc, the back and sides of the abdomen, are very minutely sprinkled with luteous, tinted with saffron. The thoracic disc has two longitudinal bands of grey, between which the general colour is less intense than it is laterally. The back of the abdomen has a longitudinal grey band on each side; and the sides of the abdomen on their lower edge are greyish white. The tentacula are sometimes very faintly tinted with bluish. The foot is generally sprinkled with minute testaceous dots.

This species is very common in all the kitchen gardens round

London, and is said to be very destructive by the gardeners, who name it the *April Slug*.

Genus 21. LIMAX.

Limax, *Férussac* et *Auctorum*.

Apertura lateralis pone thoracis disci medium. *Apertura branchialis* dextra, posterior. *Dorsum* posticè saltem carinatum, glandulâ muciferâ nullâ instructum. *Testa* interior, postthoracica, tenuis. *Corpus* subcylindricum, posticè acuminatum. *Thorax* concentricè striatus. *Dorsum* et *Latera* tuberculis elongatis, sulcisque confluentibus sculpta. *Pes* a corpore vix distinctus, lateribus angustissimis.

Synopsis Specierum.

1. *antiquorum*; badius, fuscus, cinereus aut niger, sæpius longitudinaliter fasciatus, carinâ dorsali dentatâ aut undulatâ, capite tentaculisque badiis.
2. *maculatus*; luteus, supra nigro-maculatus.
3. *variegatus*; lutescens aut nigricante-griseus, luteo aut croceo variegatus, thorace subconcentricè elevato-lineato et maculato, tentaculis cærulescentibus.
4. *carinatus*; griseus, nigricante et subcroceo variegatus, dorso usque ad thoracem carinato; carinâ simplici, croceâ.
5. *agrestis*; rufescens aut griseus, concolor aut fusco-maculatus, thorace elongato posticè rotundato, carinâ dorsali brevi obliquâ, collo supernè bisulcato.

Lateral aperture situated behind the middle of the thoracic disc. Branchial aperture on the right side posteriorly. Back carinated, at least posteriorly, without a mucous gland at its extremity. Shell slender, slightly concave, situated beneath the hinder part of the thoracic disc.

Body subcylindric, acuminated posteriorly. Thoracic disc concentrically striated. Back and sides sculptured with elongate tubercles and confluent grooves. Foot scarcely distinct from the body, its sides very narrow.

The dorsal carina is simple in all the British species, except *L. antiquorum*, in which it is undulated or dentated. It rarely extends anteriorly beyond the middle of the back ; but in our *L. carinatus* it touches the disc of the thorax, Pl. VIII. fig. 3.

The shell is for the most part single ; but two, and sometimes three, shells are found lying over each other.

The lateral aperture contains the orifices of the respiratory sac and rectum, which are very near to each other. The aperture for the organs of generation is placed near the right superior tentaculum behind.

1. LIMAX ANTIQUORUM.

L. badius, fuscus, cinereus aut niger, sæpius longitudinaliter fasciatus, carinâ dorsali dentatâ aut undulatâ, capite tentaculisque rufescente-badiis.

Limax Antiquorum, *Féruss. H. des M.* i. 68. pl. 4.
Limax cinereus, *Lister, Phil. Trans.* ix. 96. t. 14.
Limax maximus, *Linn. Syst. Nat.* xii. i. 1081 ; *Penn. Brit. Zool.* iv. 41.
Limax cinereus, *Müll. Hist. Verm.* v. 202. var. *a.* et *β* ; *Drap. H. des M.* 104 ; *Sturm. Deut. Fn. Wurm.* 2 heft.
Limax cinereo-niger, *Sturm. Deut. Fn. Wurm.* 1 heft.
Testa tenuis, concava, *Féruss. Hist. Nat. des Moll.* pl. 4. fig. 4.
Habitat in cavernis, cellariis.

Colore valdè variat. Thorax concolor, aut pulcherrimè maculatus. Dorsum et latera quandoque nigra aut fusca, nec raro immaculata, cinerea, badia aut brunnea, sæpè fasciis vel maculis in lineis longitudinalibus digestis, pulcherrimè ornatis.

Corpus valdè elongatum. Caput lineâ longitudinali nigrâ utrinque canaliculatâ, fasciâque obscurâ utrinque a tentaculorum basi ad thoracem ductâ. Tentacula elongata. Dorsum elongato-sculptum ; sculptura erosa, anticè et posticè acuminata. Carina ad medium dorsi, vel ultra producta, serrata, dentata aut undulata. Pes albidus, in nonnullis luteo tinctus.

Body chestnut, fuscous, cinereous, or sooty-black, generally banded longitudinally, the dorsal carina dentated or undulated, head and tentacula reddish chestnut.

Body much elongated. Head with a longitudinal black line, having a groove on each side, and an obscure band on each side extending from the base of the tentacula to the thoracic disc. Tentacula elongated. Back sculptured, with oblong corroded tubercles, which are acuminated at each extremity. Carina extending anteriorly beyond the middle of the back, serrated, dentated, or undulated above. Foot white, sometimes lutescent.

It varies much in colour. The thoracic disc is of the same colour with the rest of the body, or is beautifully mottled. The back and sides are often black or fuscous; at other times chestnut-brown or cinereous, and beautifully ornamented with longitudinal lines entire, or composed of spots of a darker colour. Length seven or eight inches.

This species seems to be very rare in Britain, as I have only obtained specimens, which were found in a cellar, near Cobham, in Surrey, and at Starston, Harleston, in Norfolk, by the Rev. W. Whitear.

Shell thin, elongate, concave, generally with a membranaceous edge.

2. Limax maculatus.

L. luteus, supra nigro pulcherrimè maculatus.

Habitat prope Edinburgh sub lapidibus.

Thorax læviusculus maculis distinctis, nigris ornatus. Dorsi medium maculis distinctis, sublateraliter maculis confluentibus vittam irregularem efformantibus; lateribus ipsis maculis minoribus undique confluentibus.

Colour luteous, its upper part beautifully spotted with black. Thoracic disc rather smooth, the spots distinct. Back with distinct spots. Towards the sides the spots are confluent, and form an irregular longitudinal band. The sides themselves are varied with smaller spots, which on every side join with each other. Sculpture irregular.

This description is taken, in default of a living specimen, from one in spirits. Its size is the same, in the contracted state, with that of *L. variegatus*, and its carina appears to be of the same proportion.

Common on the hills round Edinburgh under stones.

3. Limax variegatus.

L. lutescens aut nigricante-griseus, luteo vel croceo variegatus, thorace subconcentricè elevato-lineato et maculato, tentaculis cærulescentibus.

Limax variegatus, *Drap. Moll. Terr. et Fluv.* 127. 9; *Féruss. Hist. des Moll. T. et F.* 71. pl. 6. figs. 1–4.

Testa tenuis, concava, posticè externè mamillata. *Féruss. loc. cit.* fig. 4.

Habitat in subterraneis et sub lapidibus.

Tentacula cærulea, inferiora pallidiora. Caput lineis duabus longitudinalibus exaratis, utrinque fusco aut nigricante sæpissimè crebrò punctulatis. Thorax saturatior, luteo aut croceo pulcherrimè maculatus. Latera thoracis et abdominis immaculata. Dorsum variegatum; sculptura elongata anticè et posticè subattenuata, nec verò acuta. Carina ad medium dorsi haud attingens, crocea, rariùs lutea. Pes griseus albidus aut lutescens.

Limax variegatus occurs in cellars, caves, and old buildings; likewise in gardens and fields beneath stones. The tentacula are blue, the under ones of a paler hue. Head with two longitudinal excavated lines, generally punctulated on each side with dark brown or blackish. The disc of the thorax is of a deeper colour than the rest of the body, and is elegantly spotted with clay-yellow or croceous. It is sculptured very beautifully with subconcentric elevated lines. Sides of the thorax and foot without spots. Back variegated, the sculpture elongated, attenuated before and behind, but not acutely. Keel croceous, very rarely luteous. Foot grey, whitish, or luteous.

This beautiful species, which is by no means uncommon in the environs of London, does not appear to be abundant in other parts of Britain: it is rare in Devonshire. I once received a specimen from my friend Professor Buckland, who found it near Oxford. Length two and a half inches.

Shell thin, concave, mamillated at its posterior extremity externally.

De Férussac quotes the *Limax flavus* of Linné and Pennant for this species; but as Linné quotes Lister's descriptive character*, which does not apply to *L. variegatus*; and as Pennant has only translated this character, I must decline agreeing in opinion with my learned friend.

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* "Limax succinei coloris, albidis maculis insignitus." *List. exerc. Anat.* i. t. 1; *Linn. Syst. Nat.* xii. i. 1082.

4. LIMAX CARINATUS. Pl. VIII. fig. 3.

L. griseus nigricante et subcroceo variegatus, dorso usque ad thoracem carinato; carinâ simplici croceâ.

Testa parva, crassiuscula, ovata, plana; rarius concava.

Habitat in hortis circa Londinum vulgatissimè.

Animal grey, variegated with pale or dusky croceous; back carinated from its hinder extremity to the thoracic disc; the carina simple and saffron-coloured. Shell small, thickish, ovate, and flat, very rarely concave.

This very beautiful and new species was communicated to me by my friend R. Latham, Esq., together with a quantity of *L. variegatus*, which he had kindly promised to procure for me. On examination I found it to be a most common species in all the gardens around London.

It resembles at first sight *Limax variegatus*, with which it agrees in size and general colouring; but it may readily be distinguished by its prolonged carina, and by the inferior size, but superior thickness and different form, of its internal shell, which is very rarely concave.

5. LIMAX AGRESTIS.

L. rufescens aut griseus, concolor aut fusco maculatus, thorace elongato posticè rotundato, carinâ dorsali brevi obliquâ, collo supernè bisulcato.

Limax agrestis, *Féruss. Hist. des Moll.* 73.

Var. α. Albidus immaculatus.

Limax cinereus alter, *List. Phil. Trans.* (1674) 96.

Limax agrestis, *Linn. Syst. Nat.* xii. i. 1082; *Penn. Brit. Zool.* iv. 41; *Drap. Hist. des Moll.* 126. var. α; *Féruss. Hist. Nat. des Moll.* var. α.

Var. β. Albidus, thorace flavescente.

Limax agrestis, *Müll. Verm. Hist.* 204. var. ε; *Drap. Hist. des Moll.* 126. var. γ; *Féruss. Hist. Nat. des Moll.* pl. 5. figs. 9–10. var. γ; *Lath. Trans. Linn. Soc.* iv. 85. var. β.

Limax filans, *Hoy, Trans. Linn. Soc.* i. 184.

Var. γ. Albidus, capite nigro.

Limax agrestis, *Müll. Verm. Hist.* 204. var. γ; *Féruss. Hist. des Moll.* var. δ.

Var. δ. Albidus vel griseus, atomis nigris sparsus.

Limax agrestis, *Müll. Verm. Hist.* 204. var. β; *Drap. Hist. des Moll.* 126. var. β; *Féruss. Hist. Nat. des Moll.* var. ε.

Var. ε. Rufus, flavescens aut griseus, fusco-sparsus.

Limax reticulatus, *Müll. Hist. Verm.* 207.

Limax agrestis, *Féruss. Hist. Nat. des Moll.* 74. pl. 5. figs. 7–8.

Testa elongato-ovata, duriuscula, albida, vix concava.

Habitat in hortis, campis, nemoribusque vulgatissimè, sub lapidibus sæpissimè latitans.

Animal rufescent or grey, sometimes freckled or spotted with fuscous; surface slightly sculptured; thoracic disc elongated, rounded behind; dorsal carina short, oblique; neck bisulcated above. Shell oblong-oval, rather hard, slightly concave.

This is by far the most common of the British species of slug, and is found in woods, fields, and gardens, often hiding itself under stones. Length from one to two inches.

The neck is generally of a red or pale flesh colour, marked behind the tentacula with two blackish bands, which are sometimes interrupted by spots.

This species, like its congeners, is liable to a vast number of variations in colour, and has consequently been divided into a vast number of supposed species which pass gradually into each other, and prove them to form but varieties of the same species.

In the first volume of the Transactions of the Linnæan Society, Mr. Hoy has published a paper on one of the varieties of this slug, which he has denominated the Spinning Limax. In the fourth volume of the same work, Dr. Latham has given some additional observations on this subject, made by Montagu, with a view to show that this animal has the power to suspend itself by a thread, composed of the mucus of its foot; a character which Mr. Montagu has since assured me, was common to all the British slugs.

FAMILY II. HELICIDÆ.

Corpus spirale, testâ spirali tectum. *Pes* abdominalis. *Caput* tentaculis quatuor; superioribus elongatis, ad apicem oculigeris; inferioribus brevibus. *Organorum Sexualium Apertura* antica, sub tentaculo superiore dextro* posita.

Synopsis Stirpium.

I. *Testa spiralis, anfractu ultimo maximo.*

Stirps 1. Umbilicus nullus.

II. *Testa subglobosa, orbicularis aut depressa.*

Stirps 2. Testa subglobosa, inæquilateralis. Umbilicus nullus.
Stirps 3. Testa subglobosa, inæquilateralis. Umbilicus perforatus.
Stirps 4. Testa depressa aut conica, æquilateralis. Umbilicus centralis.

III. *Testa turrita.*

A. Apertura inermis.

Stirps 5. Testa acutissimè turrita.
Stirps 6. Testa obtusiusculo-turrita.

B. Apertura denticulata.

Stirps 7. Testa admodum turrita, sinistrorsa.
Stirps 8. Testa acuminato-turrita. Peritrema perfectum. Umbilicus nullus.
Stirps 9. Testa subacuminato-turrita, aut obtusè turrita. Peritrema marginatum, internè inchoatum. Umbilicus perforatus. Tentacula quatuor; inferiora brevia.

In common language the *Helicidæ* are named *Snails*; the whole of them are terrestrial, and breathe air.

In all essential points they are very nearly allied to the *Limacidæ,* from which they differ, principally, in the spiral form of their body, and in the existence of the spiral shell that covers it.

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* Sinistro in heterostrophis.

The mantle anteriorly is reflexed, and forms a sort of collar, out of which the head passes when the animal is about to move, and which closes the aperture of the shell when the animal is withdrawn. The foot is separated from the lower part of the head by a transverse groove.

The lateral aperture admits air to the respiratory organs; it contains the anus, and the extremity of the duct from the gland which secretes the mucus. This opening is situated on the right side in all that are not reversed.

The tentacula of the *Helicidæ* are retractile, and are withdrawn, like the finger of a glove inverted, similar to those of the *Limacidæ*. The lower ones are almost obsolete in *Vertigo*.

All the indigenous species feed on vegetable matter. During the winter season they close the aperture of their shell, with what is termed an epiphragm (*epiphragma*), which is for the most part membranaceous; it is however calcareous in *Pomatia*. A similar epiphragm is likewise formed by the young of *Teba cingenda* during the hotter parts of the summer, as was first observed by my friend the Rev. J. Bulwer.

The nervous system is in all essential points analogous to that of the Limacidæ, but it is more connected with the muscles; and the central mass is, in the globose genera at least, not placed so near to the inferior ganglion.

The liver, in all the genera hitherto examined, is quadrilobate, and these lobes are more or less subdivided into smaller lobes. The gall-ducts which arise, each from a peculiar gall-bladder, unite into a general tube, which terminates in the anterior extremity of the duodenum.

STIRPS I.

Genus 22. SUCCINEA.

Succinea, *Draparnaud*.

Testa spiralis; anfractus ultimus maximus. *Apertura* magna, obliqua, posticè ad dextram acuminata. *Peritrema* nullum. *Umbilicus* nullus. *Tentacula* breviora: *superiora* subconica; *inferiora* tuberculiformia, brevissima.

Shell spiral; the last whorl very large. Aperture large, oblique, its hinder extremity acuminated on the right side. Peritreme none. Umbilicus none. Tentacula short; upper ones somewhat conic; under ones very short, tuberculiform.

The animal during the summer months can scarcely retire within its shell.

1. Succinea Mülleri.

S. testâ ovato-oblongâ, diaphanâ, corneâ; aperturâ ovato-oblongâ.

Helix putris, *Donov. Brit. Shells*, t. 168. fig. 1; *Mont. Test. Brit.* ii. 376. t. 16. fig. 4; *Dill. Desc. Cat.* 965.

Helix succinea, *Müll. Verm. Hist.* 296; *M. and R. Trans. Linn. Soc.* viii. 218; *Turt. Conch. Dict.* 67.

Succinea amphibia, *Drap. Hist. Moll.* 58. pl. 3. fig. 22.

Lymnæa succinea, *Flem. Edinb. Encycl.* vii. 77.

β. testa elongata, alioquin varietati, α. simillima.

Helix succinea, *Drap. loc. cit.* pl. 3. fig. 24.

Habitat in paludibus; nymphæaceis, juncis salicibusque, affixa.

Shell ovate-oblong, diaphanous, corneous; the aperture ovate-oblong. Variety β. differs merely in being more produced.

Animal blackish, extremely mucous, forming a hard epiphragm for the winter.

Inhabits marshes, attaching itself to aquatic plants, as well as to such trees as grow in wet grounds. Height of the shell five-fourths of an inch.

Young shells are often tinted with pale green, which gradually changes into horn or amber colour during their growth.

This is the only species yet discovered to inhabit Britain. It has been strangely confounded with very different species belonging to other genera.

STIRPS II.

Synopsis Generum.

Peritrema nullum	23. Vitrina.
Peritrema tenue, reflexum; posticè nullum ..	24. Helix.

Peritrema anticè internè marginatum ; posticè inchoatum . . . . 25. TACHEA.

Genus 23. VITRINA.

Vitrina, *Draparnaud.*
Helico-Limax, *Férussac.*

Testa tenuis : *Apertura* magna, semilunaris : *Peritrema* nullum. *Tentacula superiora* mediocria : *inferiora* brevissima : *Pallium* collum protegens, supernè transversim crenatum.

Shell slender, subglobose, inequilateral. Aperture large and semilunar. Peritreme none. Umbilicus none.

Upper tentacula of a moderate length ; the under ones very short. Mantle covering the neck ; its upper part transversely wrinkled.

The animal is too large to be enabled to retire perfectly within its shell.

1. VITRINA DRAPERNALDI.

V. testâ viridi, subdepressâ, hyalinâ, nitidâ, glaberrimâ ; aperturâ subovatâ, anfractibus tribus.

Helix pellucida, *Müll. Verm. Hist.* 215 ; *Dill. Desc. Cat.* 947.
Vitrina pellucida, *Drap. Hist. des Moll.* 119. pl. 8. figs. 34–37.
Helix Drapernaldi, *Cuv. Règ. Anim.* ii. 405.
Helix elliptica, *Brown, Mem. Wern. Soc.* ii. 525. pl. 24. fig. 8.
Habitat inter muscos et sub lapidibus satis frequens.

Shell green, transparent, slightly depressed, very smooth and shining, with three whorls ; the aperture somewhat ovate.

This shell, which is not uncommon amongst mosses or under stones, was observed in Scotland several years since, about the same period, by Dr. Fleming and myself ; and was communicated by each party to Montagu, who assured us that it was nothing more than the young of his *Helix nemoralis*. It has since been observed by Captain Brown, and described by him as above quoted. I have received it from the Rev. Revett Sheppard, who observed it in Norfolk, and proposed to name it *Helix glaucina*.

The specific names *pellucida, elliptica,* and *glaucina,* however good they might have been to distinguish a species of the

Linnæan artificial genus *Helix*, are useless when applied to *Vitrina*, all the known species of which are more or less elliptic, pellucid, and glaucous green.

Genus 24. HELIX.

Helix, *Auctorum*.

Testa subsolida, subglobosa, inæquilateralis. *Peritrema* tenue, reflexum, posticè nullum. *Tentacula superiora* elongata, ad apicem globosa ; *inferiora* brevia.

Shell rather solid, subglobose, inequilateral. Peritreme thin, reflexed, wanting behind. Umbilicus none. Upper tentacula elongated ; under ones moderate in length.

1. **HELIX ASPERSA.** Pl. II. figs. 1, 2.

H. testâ rugulosâ, lutescente, fuscâ aut fulvâ, longitudinaliter fasciatâ ; peritremate albo.

Helix aspersa, *Müll. Verm. Hist.* 253 ; *Mont. Test. Brit.* 407 ; *Flem. Edinb. Encycl.* vii. 79 ; *Drap. Hist. des Moll.* 89. pl. 5. fig. 23 ; *Féruss. Hist. des Moll.* pl. 18, 19, § 24. fig. 3.

Helix hortensis, *Penn. Brit. Zool.* iv. 136. t. 74. fig. 129 ; *M. and R. Trans. Linn. Soc.* viii. 208 ; *Turt. Conch. Dict.* 60.

Helix lucorum, *Pult. Cat. Dorset.* 48.

Helix grisea, *Dill. Desc. Cat.* 943.

Habitat in Britanniæ nemoribus, campis, et hortis, passim.

Shell somewhat roughish or wrinkled, lutescent, fuscous, or orange-coloured ; whorls longitudinally banded with deep brown or black. Peritreme white.

Bands generally five in number, and more or less mottled or interrupted with the prevalent colour of the shell. It is subject to all the varieties that can arise from the loss, or confluence of from one to all of these bands.

Helix aspersa is by far the most common species of this family that occurs in Britain. It inhabits gardens, fields and woods, everywhere doing incredible mischief to the agriculturist and gardener.

The reversed variety is extremely rare, and the open turrited still more so. I am obliged to Mr. Johns, of Plymouth, for the specimen figured in Pl. II. fig. 2. He found it in Devonshire, and was kind enough to communicate it to me in a living state. Diameter of the shell an inch and a half.

In the young state, like its congeners, it possesses a perforated umbilicus, which is perfectly closed in the adult shell.

The internal spicula are rarely more than a quarter of an inch in length.

Upper part of the animal generally of a green colour, more or less tinged with blackish. Under parts pale grey or ash-coloured, sometimes tinted with pale green. Tentacula ash-coloured. Eyes black.

Genus 25. TACHEA.

Testa subsolida, subglobosa, inæquilateralis. *Peritrema* internè marginatum, externè subreflexum, posticè tantum inchoatum. *Tentacula* tenuia, elongata.

Shell rather solid, subglobose, inequilateral. Peritreme margined within, subreflexed without, only commenced behind. Umbilicus none. Tentacula slender, elongate.

1. TACHEA NEMORALIS.

T. testâ glabratâ, concolore vel fasciis 1, 2, 3, 4, aut 5 ornatâ, peritremate internè perfusco.

Helix nemoralis, *Linn. Syst. Nat.* xii. i. 1247; *Penn. Brit. Zool.* iv. 137; *Mont. Test. Brit.* 411; *M. and R. Trans. Linn. Soc.* viii. 206; *Drap. Hist. des Moll.* 94. pl. 6. figs. 3–5; *Dill. Desc. Cat.* 942, A; *Turt. Conch. Dict.* 59.

Habitat in agris, campis, nemoribusque, vulgaris.

Shell smooth, of an uniform colour, or longitudinally banded with from one to five bands. Peritreme internally deep-fuscous.

Colour white, yellow, reddish, flesh-red, livid, chestnut, pale-fuscous or luteous.

It has usually five bands of deep fuscous or chocolate-brown, any of which may be found wanting, or confluent. This species, in short, is subject to every variety that can arise from the wanting of one, two, three, four, or all the bands; from the wanting of one or more of any particular bands; or from the confluence of any two, three, four, or all the bands; or loss of some band or bands, with the confluence of other bands.

A variety with a white peritreme is occasionally found, but is far from being common.

The animal is very variable in colour; it is usually brownish above, with a pale line on the middle of the back; foot pale yellow or testaceous. Tentacula cinereous, often tinted with very pale blue.

The volutions are sometimes separated or very much produced. I possess one in the latter state, which is figured in Pl. II. fig. 3; and since the plate was engraved, I have received another specimen which is more than twice as high. Longitudinal diameter an inch.

2. TACHEA HORTENSIS.

T. testâ glabratâ, concolore 1, 2, 3, 4 aut 5-fasciatâ, peritremate internè albo.

Helix hortensis, *Müll. Verm. Hist.* 247; *Mont. Test. Brit.* 412; *Drap. Hist. des Moll.* 95. pl. 6. fig. 6; *Flem. Edinb. Encycl.* vii. 81; *Turt. Conch. Dict.* 60?; *Dill. Cat. Desc.* 942, B.

Helix nemoralis var., *M. and R. Trans. Linn. Soc.* viii. 207.

Habitat cum præcedente, vulgaris.

Shell smooth, of an uniform colour, or with from one to five longitudinal bands. Peritreme internally white. Longitudinal diameter seven-eighths of an inch.

This species is invariably smaller than *Tachea nemoralis*, from which it may be generally distinguished by the white colour of the inner aspect of its peritreme. It is subject to all the varieties of the preceding species. Its flesh-coloured variety is not unfrequently found with the peritreme of the same colour.

An anatomical distinction between this species and *T. nemoralis* has been discovered by my friend Mr. J. Henslow, of Cambridge, who is about to write a paper on the subject.

STIRPS III.

Synopsis Generum.

Peritrema internè marginatum ; posticè tenuiter inchoatum	26. ARIANTA.
Peritrema crassius ; posticè nullum	27. POMATIA.

Genus 26. ARIANTA.

Testa subsolida, subglobosa, inæquilateralis. *Peritrema* internè marginatum, posticè tenuiter inchoatum. *Umbilicus* minimus. *Epiphragma* membranaceum.

Shell rather solid, somewhat globose, inequilateral. Peritreme margined, only rudimentary behind. Umbilicus very small. Epiphragm membranaceous.

1. ARIANTA ARBUSTORUM.

A. anfractibus convexiusculis, pallidè fulvo-castaneis fusco-marmoratis, longitudinaliter unifasciatis, peritremate albo.

Helix Arbustorum, *Linn. Syst. Nat.* xii. i. 1245 ; *Müll. Verm. Hist.* 248 ; *Penn. Brit. Zool.* iv. 136. pl. 85. fig. 130 ; *Mont. Test. Brit.* 413 ; *Drap. Hist. des Moll.* 88. pl. 5. fig. 18 ; *M. and R. Trans. Linn. Soc.* viii. 202 ; *Flem. Edinb. Encycl.* vii. 81 ; *Dill. Desc. Cat.* 924 ; *Turt. Conch. Dict.* 56.

Cochlea unifasciata, *Da Costa,* 75. t. 17. fig. 6.

Habitat in nemoribus et pratis humidis, frequens.

Shell with slightly convex whorls, marbled with fuscous, and marked with one longitudinal band of fuscous. Peritreme white. Longitudinal diameter an inch. Height variable.

Arianta Arbustorum differs from all its known exotic congeners in the specific character given above. It is subject to very great variation in height and size. In mountainous and granitic districts it often occurs of nearly half the usual size.

The longitudinal band is often faint ; but I have very rarely found it wanting. It occupies the middle of the last whorl, and the apparent bases of the other whorls.

This species inhabits low meadows and groves. It is found in most parts of Britain, and is very abundant in the marshes round London, and near Cannon Mills, Edinburgh. In this

last-mentioned locality, it has a general tendency to be more or less turrited. I obtained one specimen that rather exceeds an inch in height.

Genus 27. POMATIA.

Pomatia, *Plinii.*

Testa solida, subglobosa, inæquilateralis. *Apertura* magna rotundato-lunata. *Peritrema* crassius; posticè nullum. *Animal* verrucosum. *Tentacula* mediocria, ad apicem globoso-dilatata. *Oculi* minimi, posticè inserti. *Epiphragma* cretaceum.

Shell solid, subglobose, inequilateral. Aperture large, rounded-lunate. Peritreme thick, wanting behind. Animal verrucated. Tentacula of moderate length, dilated globosely at their extremities. Eyes very small, inserted at the posterior edge of the dilatation of the tentacula.

The epiphragm is composed of chalky matter, and has been described as the animal's operculum.

The name *Pomatia* is derived from Πωματίας, the term applied to it by Dioscorides, *lib.* ii. *cap.* 2, from πῶμα, operculum, and not from *Pomum*, as some of our writers suppose, when they call it the Apple Snail.

1. POMATIA ANTIQUORUM.

P. testâ ventricosâ, rufescente, obsoletè fasciatâ, peritremate brunneo-violascente.

Helix Pomatia, *Linn. Syst. Nat.* xii. i. 1244; *Penn. Brit. Zool.* iv. 134. t. 84. fig. 128; *Mont. Test. Brit.* 134. t. 84. fig. 128; *Drap. Hist. des Moll.* 87. pl. 5. fig. 20; *M. & R. Trans. Linn. Soc.* viii. 201; *Flem. Edinb. Encycl.* vii. 79; *Dill. Desc. Cat.* 920; *Turt. Conch. Dict.* 56; *Féruss. H. N. des Moll.* pl. 21.

Habitat in cretaceis satis frequens.

Testa anfractibus longitudinaliter, tenuissimè, transversim fortius striolatis.

Animal supra griseo-cinereum, subolivaceo-lutescens, ferrugineo-subcroceum aut sordidè testaceum. Sculpturæ interstitia olivaceo-fusca, nigricantia aut cærulescente-grisea. Pallii margo concolor aut pallidior. Latera nonnunquam nigro vittata. Tentacula coloris dorsi, ad apices sæpissimè rufa. Oculi atri. Pes griseus, pallidè olivaceus, rufescente-fuscus aut luteus, griseo-rufescens, nigricans, aut viridescente-luteus; margine concolore aut pallidiore.

Shell ventricose, generally rufescent, often pale orange or dirty yellow. Whorls five, very slightly striated in the longitudinal or spiral direction, but more strongly and irregularly so in the transverse direction.

Upper part of the animal greyish-ash colour, olive inclining to lutescent, rusty inclining to red orange or dirty-testaceous: the grooves between the sculptured eminences olive-brown, blackish, or bluish-grey; the margin of the same colour with the back, or paler. The sides are sometimes marked with a broad blackish line. Foot grey, pale olive, reddish brown or luteous, grey-reddish, blackish or greenish-lutescent. Margin of the same colours, or paler. Tentacula of the same colour with the back; their points generally reddish. Eyes black.

The sculpture of the back is oblong; that of the sides irregular, and not longer than wide; that of the margin of the mantle less impressed, and finer towards the edges. Margin of the mantle with a longitudinal impressed line.

The longitudinal bands of colour are rarely visible in British specimens of the shell, excepting on the larger whorl; these bands vary in size, and in number from two to five. The general colour of the peritreme is brownish-violet, but it is occasionally of a pure brown or dirty white.

This Pomatia, the only indigenous species, is very common in most of the chalk and oolite formations of England, and has been supposed by many persons to have been imported from the Continent for the use of invalids; but its general diffusion in a certain soil seems to refute this notion.

In Austria, where this animal is bred as an article of luxury, it is subject to a variety of monstrosities in form; it is not unfrequently reversed; and is sometimes turrited, in which state it has been described by Müller as a distinct species, under the name *Helix scalaris*. See *Drap. Hist. des Moll.* pl. 5. fig. 21, 22. Diameter of the base of the shell two inches.

STIRPS IV.

Synopsis Generum.

Umbilicus semiclausus	28. Teba.
Umbilicus apertus. Peritrema posticè imperfectum	29. Zonites.
Umbilicus apertus. Peritrema perfectum, reflexum	30. Chilotrema.
Umbilicus apertus. Peritrema fere perfectum, marginatum	31. Zurama.

Genus 28. Teba.

Testa depresso-subglobosa, aut subconica, æquilateralis. Umbilicus centralis, semiclausus.

Shell subglobose, somewhat depressed or conic, equilateral. Umbilicus central and half-closed.

Synopsis Specierum.

* *Testa subglobosa. Umbilicus subangustatus.*

1. *cingenda.* Testa alba, fusco et lutescente multifasciata; fasciis sæpè interruptis, peritremate roseo.
2. *virgata.* Testa alba, fusco 1–6-fasciata, peritremate sordidè rufo.

** *Testa depresso-subglobosa. Umbilicus subapertus.*

3. *Cantiana.* Testa semipellucida, anfractibus transversim striolatis, peritremate internè pallidè brunneo; incrassatâ parte albâ.
4. *Carthusianella.* Testa semipellucida, anfractibus transversim tenuissimè striolatis, peritremate internè carneo-brunneo; incrassatâ parte albidâ; externè fasciâ lacteâ cincta.
5. *rufescens.* Testa cornea, anfractibus transversim striolatis, apertura internè brunnea, peritremate internè submarginato, albo.
6. *caperata.* Testa albida opaca, longitudinaliter fusco-fasciata transversim striata, peritremate albido.

7. *hispida.* Testa elevata, lutescens, pellucida, hirsuta; umbilico parvo.

*** *Testa conico-globosa. Umbilicus angustatus.*

8 *fulva.* Testa cornea, lævis, nitida; peritremate simplici.

**** *Testa subconica. Umbilicus angustatus.*

9. *spinulosa.* Testa epidermide in lamellas elevatas transversas digestâ.

1. TEBA CINGENDA.

T. testâ albâ, fusco- at lutescente-multifasciatâ; fasciis sæpius interruptis, peritremate roseo.

Helix zonaria, *Penn. Brit. Zool.* iv. 137. pl. 85. fig. 133.

Helix cingenda, *Mont. Test. Brit.* 418.—*Supp.* t. 24. fig. 4; *M. and R. Trans. Linn. Soc.* viii. 195; *Flem. Edinb. Encycl.* vii. 79; *Turt. Conch. Dict.* 49.

Helix Pisana, *Müll. Verm. Hist.* 255.

Helix rhodostoma, *Drap. Hist. des Moll.* 86. pl. 5. figs. 14, 15.

Helix strigata, *Dill. Desc. Cat.* 911.

Habitat in locis aridis, plerumque maritimis.

Shell white, with many longitudinal bands of deep brown or lutescent colour, more or less interrupted. Peritreme rosy.

Animal pale ash-coloured or lutescent, sometimes grey, and marked with a dorsal line. Upper tentacula elongated, slender. Eyes very black, small, and inserted at the posterior edge of the extremity of the tentacula.

Shell finely striated longitudinally and transversely. On the last whorl may be distinguished four longitudinal bands, composed of lines; the two left bands are continued into the interior of the shell, whilst the two right bands ascend over the other whorls. It is subject to very great variations in colour. It is found white or luteous, without any bands of colour; with one simple band of dark brown or chocolate; or entirely covered by longitudinal fuscous lines.

Teba cingenda inhabits dry sandy places, especially such as border on the seashore. It is very abundant on the south of

Tenby, near the town; on the slope of the hill descending to the town of St. Ives, Cornwall; and above Whitsand Bay, in the same county.

In the young state, during very hot weather, it adheres to the stalks of junci and grasses, forming a marginal epiphragm of calcareous matter, which fills up the space between the shell and the stalk. This fact was observed by my friend the Rev. J. Bulwer, who communicated to me living specimens in that state.

2. TEBA VIRGATA.

T. testâ albâ, fusco 1-6-fasciatâ; peritremate sordidè rufo.

Helix virgata, *Mont. Test. Brit.* ii. 415; *Supp.* pl. 24. fig. 1; *M. and R. Trans. Linn. Soc.* viii. 195; *Flem. Edinb. Encycl.* vii. 79.
Helix variabilis, *Drap. Hist. des Moll.* 84. pl. 5. figs. 11, 12.
Helix zonaria, var., *Penn. Brit. Zool.* iv. 137. t. 85. fig. 133. A.
Helix zonaria, *Donov. Brit. Shells*, pl. 65.
Helix Pisana, *Dill. Desc. Cat.* 911.
β. alba aut albida, immaculata.
γ. perfusca, lineâ longitudinali albâ.
Habitat in arenosis, plerumque maritimis.

Shell white, striated transversely, with from one to six fuscous bands. Peritreme dirty rufous.

Animal pale cinereous; upper part of the same colour, or of a neutral tint. Collar blackish, inclining to violet. Tentacula bluish grey. Eyes black, inserted at the superior apex of the tentacula.

Teba virgata is subject to all such varieties as can arise from the want or confluence of any of its bands. It is found in the greatest abundance on most of the sandy shores of Britain, and sometimes occurs in inland situations, where the soil is sandy. Var. β. is found around Plymouth, and γ. is not uncommon amongst the common banded varieties.

3. TEBA CANTIANA.

T. testâ semipellucidâ, anfractibus transversim striolatis, peritremate pallidè brunneo; parte incrassatâ albâ.

Helix Cantiana, *Mont. Test. Brit.* ii. 422.—*Supp.* t. 23. fig. 1; *M. and R. Trans. Linn. Soc.* viii. 197; *Flem. Edinb. Encycl.* vii. 79; *Dill. Desc. Cat.* 895.

Helix pallida, *Donov. Brit. Shells*, pl. 157. fig. 2.

Animal pallidè rufescente-cinereum, griseum aut pallidè brunneum. Tentacula pallidè nigricantia, aut subcærulescentia.

Habitat in pratis, præsertim in cretaceis.

Shell semipellucid, the whorls transversely striolated. Peritreme pale brown; the incrassated part white. With the animal in it, the shell is often beautifullly mottled or marbled with fulvescent, more or less mixed with blackish.

It is found in many of the sandy and chalky parts of Kent, Surrey, and Hampshire. It has likewise been observed at Spetisbury, in Dorset, by the Rev. T. Rackett; near Hertford, by J. F. Stephens, Esq.; and is also found near Cobham, in Surrey.

Animal very variable in colour; pale rufous-cinereous; grey or pale brown. Tentacula pale-blackish, or inclining to bluish. Longitudinal diameter of the shell three-quarters of an inch.

4. TEBA CARTHUSIANELLA. Pl. VIII. figs. 4–6.

T. testâ semipellucidâ, anfractibus transversim tenuissimè striolatis, peritremate internè carneo-brunneo, incrassatâ parte albidâ; externè fasciâ lacteâ cinctâ.

Helix carthusianella, *Drap. Hist. des Moll.* 101. pl. 6. fig. 31.

Habitat in cretaceis, circa Dover et Little Hampton, vulgaris.

Shell semipellucid, the whorls very finely striolated transversely. Peritreme internally brown, inclining to flesh-coloured, the thickened part whitish externally, with a milk-white band.

Mr. Gibbs first discovered this species to be an inhabitant of Britain in 1814, and communicated it to Montagu, who named it in his MSS. *Helix Gibbsii.*

Since that time I observed it in great plenty around Little Hampton, in Sussex, but of a small size, though adult. Mr. Stephens has discovered it of the size figured in this synopsis, at Dover, in abundance.

Animal grey or testaceous, tinted with saffron. Mantle sometimes marked with a whitish band, with or without minute dark or saffron-coloured punctures. Tentacula bluish-grey. Longitudinal diameter of the shell five-eighths of an inch.

5. TEBA RUFESCENS.

T. testâ corneâ, depressâ; anfractibus transversim striolatis, aperturâ internè brunneâ, peritremate internè submarginato, albo.

Helix rufescens, *Mont. Test. Brit.* ii. 420; *M. and R. Trans. Linn. Soc.* viii. 196; *Flem. Edinb. Encycl.* vii. 79; *Dill. Desc. Cat.* 895.

Helix glabella, *Drap. Hist. des Moll.* 102. pl. 7. fig. 6.

Habitat in nemoribus, hortis, et pratis, vulgaris.

Shell horny, the whorls finely striolated transversely; the aperture internally brown. The peritreme slightly margined internally, and white.

Colour reddish-brown, horn-coloured, or orange-brown. Longitudinal diameter half an inch.

Inhabits woods, groves, gardens, and meadows. It is very abundant in most parts of Britain. The animal varies extremely in colour.

Young specimens are generally covered with short hairs, a character common to it, and to several of its continental congeners.

6. TEBA CAPERATA.

T. testâ albidâ, opacâ, longitudinaliter fusco fasciatâ, transversim striatâ; peritremate albido, internè marginato.

Helix caperata, *Mont. Test. Brit.* 430. t. 11. fig. 11; *M. and R. Trans. Linn. Soc.* viii. 196; *Flem. Edinb. Encycl.* vii. 80; *Turt. Conch. Dict.* 51.

Helix crenulata, *Dill. Desc. Cat.* 895.

Helix striata, *Drap. Hist. des Moll.* 106. pl. 6. figs. 18–20.

Habitat in aridis.

Shell whitish opake, longitudinally banded with fuscous, and striated transversely. Peritreme whitish, margined within. Longitudinal diameter half an inch.

Shell with its apex slightly depressed. Colour very variable.

The longitudinal bands often interrupted, or composed of irregular ragged and confluent spots. It is sometimes entirely of a reddish-brown or fuscous colour, with whitish longitudinal bands. The apex of the common varieties is sometimes blackish, which has given to the species the common appellation, *black-tipped snail.*

Teba caperata is very common in the vicinity of Plymouth, and on the borders of Dartmoor. It is found likewise in Kent; near Lackham, in Wiltshire; on the dry granitic districts of Cornwall; at Tenby; and sparingly in the south of Ireland.

It inhabits dry and hot situations. Its animal is very variable in colour.

7. TEBA HISPIDA.

T. testâ elevatâ, tenui, lutescente, pellucidâ, hirsutâ; umbilico parvo.

Helix hispida, *Linn. Syst. Nat.* xii. i. 1244; *Müll. Verm. Hist.* 268; *Mont. Test. Brit.* 423; *M. and R. Trans. Linn. Soc.* viii. 198; *Flem. Edinb. Encycl.* vii. 79; *Drap. Hist. des Moll.* 103. pl. 7. fig. 20; *Dill. Desc. Cat.* 915.

Habitat in humidis, passim.

Shell elevated, pellucid, inclining to luteous, fragile, hairy. Longitudinal diameter three-eighths of an inch.

Teba hispida inhabits moist places, and is found under stones or amongst moss. It appears to be a local species; but is by no means uncommon in the woods that skirt Dartmoor, and in the vicinity of Kingsbridge in shady places. It is found likewise near Penryn, in Cornwall; near Lackham, in Wiltshire; near Bristol and Swansea; and in Rivelstone Wood, near Edinburgh.

The umbilicus, which is very small, will at once distinguish this from all the preceding species. The hairs are of a whitish colour, and are formed by elevations of the Epidermis.

Colour of the animal greyish, or ash-grey. Eyes black. Tentacula generally of a darker colour, rarely brown.

The tentacula are rather more slender in this than in any other British species that I have examined.

8. TEBA FULVA.

T. testâ corneâ, lævi, nitidâ, peritremate simplici.

Helix fulva, *Müll. Verm. Hist.* 249; *Drap. Hist. des Moll.* 81. pl. vii. figs. 12, 13.

Helix trochiformis, *Mont. Test. Brit.* 427. t. 11. fig. 9; *M. and R. Trans. Linn. Soc.* viii. 200; *Flem. Edinb. Encycl.* vii. 80.

Helix Trochulus, *Dill. Desc. Cat.* 916.

Habitat in sylvis, rarior.

Shell horny, smooth, glossy, with a simple peritreme. Colour inclining to rufous.

Superior tentacula moderate. General colour of the animal cinereous or grey.

Inhabits woods, but is by no means common in a living state. Dead shells are frequently found amongst the rejectamenta of the Thames at Battersea and Eton.

9. TEBA SPINULOSA.

T. testâ epidermide in lamellas transversas, elevatas digestâ; anfractuum sutura profunda.

Helix spinulosa, *Lightfoot, Phil. Trans.* lxxvi. t. 2. figs. 1–5; *Mont. Test. Brit.* ii. 429. t. 11. fig. 10; *M. and R. Trans. Linn. Soc.* viii. 201; *Flem. Edinb. Encycl.* vii. 80; *Turt. Conch. Dict.* 55.

Helix aculeata, *Müll. Verm. Hist.* 279; *Drap. Hist. des Moll.* 82. pl. 7. figs. 10, 11.

Habitat in sylvis, rarissima.

Shell with its epidermis elevated into transverse lamellæ; suture between the whorls deeply impressed.

The elevated lamellæ are flexible, and easily rubbed off. Shell thin. Colour horny, or pale brown, more or less tinted with very pale reddish.

This species is very rare; it inhabits woods amongst moss or on decaying trees.

Montagu observed it in woods, near Lackham, in Wiltshire; and in the vicinity of Kingsbridge, from whence I too have received it.

Animal cinereous or grey; tentacula of the same colour, or tinted with pale sooty-black. Foot very pale grey, or whitish.

Genus 29. ZONITES.

Zonites, *De Montfort*, *Say*.

Testa depressa, æquilateralis. *Umbilicus* centralis apertus. *Peritrema* posticè imperfectum.

Synopsis Specierum.

1. *Ericetorum.* Testa albida, opaca, anfractibus transversim elevato-striatis, sæpius longitudinaliter fasciatis.
2. *radiatus.* Testa rufescente-grisea, subcarinata, ad dextram purpureo-badio-radiata, anfractibus transversim sulcatis.
3. *rupestris.* Testa brunnea, anfractibus transversim striolatis, aperturâ subcirculari.
4. *nitidus.* Testa pellucida, nitida, ad dextram lutescente-cornea; albida ad sinistram, anfractibus quinque transversim strigosis.
5. *crystallinus.* Testa subviridescente-hyalina, nitida, anfractibus 4½ transversim tenuissimè strigosis.

1. ZONITES ERICETORUM.

Z. testâ albidâ, opacâ, anfractibus transversim elevato-striatis, sæpius longitudinaliter fasciatis.

Helix Ericetorum, *Müll. Verm. Hist.* 236; *Mont. Test. Brit.* 437.—*Suppl.* t. 24. fig. 2; *M. & R. Trans. Linn. Soc.* viii. 194; *Drap. Hist. des Moll.* 107; *Donov. Brit. Shells,* t. 151. fig. 2; *Flem. Edinb. Encycl.* vii. 80; *Dill. Desc. Cat.* 910; *Turt. Conch. Dict.* 49.

Helix Erica, *Da Costa,* 58. t. 4. fig. 8.

Helix albella, *Penn. Brit. Zool.* iv. 132. pl. 35. fig. 122.

Helix Cespitum, *Drap. Hist. des Moll.* 109.

Habitat in arenosis, et in cespitosis aridis.

Shell whitish, opake, the whorls with transverse elevated striæ, often fasciated longitudinally.

Animal transparent grey above, with a bluish band on each side of the neck. Tentacula slender, and more or less tinged with pale brown.

Shell with fine whorls. Aperture approaching to round; very slightly reflexed anteriorly.

Colour whitish, or fuscescent, without bands; with one or more obscure bands of white; or with five or six bands of fuscous brown. These are subject to all the usual varieties that occur in banded shells.

This species, which shows the generic characters in their highest state of development, inhabits dry sandy districts and heaths in many parts of Britain, and is found in the greatest profusion.

2. ZONITES RADIATUS.

Z. testâ rufescente-griseâ, subcarinatâ, ad dextram purpureo-badio radiatâ, anfractibus transversim sulcatis.

Helix rotundata, *Müll. Verm. Hist.* 231; *Drap. Hist. des Moll.* 114, pl. 8, figs. 5–7; *Dill. Desc. Cat.* 891.

Helix radiata, *Mont. Test. Brit.* 432.—*Suppl.* t. 24. fig. 3; *M. & R. Trans. Linn. Soc.* viii. 199; *Flem. Edinb. Encycl.* vii. 80; *Turt. Conch. Dict.* 53.

Helix perspectiva, *Megerlé, Berl. Mag.*

β. testa albida, immaculata.

Habitat inter muscos, et sub lapidibus et ligno putrido passim.

Shell rufescent grey, very slightly carinated, its left side elegantly rayed with purple-chestnut; whorls grooved transversely.

This elegant species is found in every part of Britain, inhabiting moss, lurking beneath stones, on dead trees, or in crevices of old walls and rocks.

The carinated appearance is not unfrequently evanescent, or nearly so, especially in very old specimens of the shell. The white variety was first communicated to me by my kind friend, the Provost of Eton, who found it near Dinton Hall, in Bucks. I have since found it sparingly on the banks of the Thames.

3. ZONITES RUPESTRIS.

Z. testâ brunneâ, anfractibus transversim striolatis; aperturâ subcirculari.

Helix umbilicata, *Mont. Test. Brit.* 434. t. 13. fig. 2; *M. &*

R. Trans. Linn. Soc. viii. 200; *Flem. Edinb. Encycl.* vii. 80; *Dill. Desc. Cat.* 915; *Turt. Conch. Dict.* 54.

Helix rupestris, *Drap. Hist. des Moll.* 82.

Animal fusco-nigricans. Tentacula inferiora tuberculiformia.

Habitat in rupibus, præsertim in subalpinis, vulgaris.

Shell brown, the whorls transversely striated finely, the aperture nearly circular. Longitudinal diameter one-eighth of an inch.

The suture between the whorls is deeply marked, and the apex moderately produced.

Inhabits rocky places, especially such as are of a considerable degree of elevation. I have observed it near the summit of Ceim-na-cailich, on the Ranza side of the Garbh-Chorie, in Arran; and at a similar elevation on Bhein Gaodh, in the same island.

It occurs in great abundance on the rocks and stone walls that skirt the low mountain-plains, in the vicinity of Cheltenham; on the borders of Dartmoor; "on the summit of the hill, in Portland Island;" on houses and old walls near Lackham, in Wiltshire; and on the Reeks, near Killarney.

The Rev. Revett Sheppard has communicated to me a minute variety of this species, under the name of *Helix elegans,* that scarcely exceeds the 20th of an inch in diameter, and which has never been found of larger dimensions, although it is very abundant at Wrabness, in Essex. I can find no difference between it and the young of *Zonites rupestris.*

Animal blackish, inclining to fuscous. Lower tentacula tuberculiform.

4. ZONITES LUCIDUS.

Z. testâ pellucidâ, nitidâ, ad dextram lutescente-corneâ, albidâ ad sinistram, anfractibus quinque transversim strigosis.

Helix lucida, *Pult. Cat. Dorset.* 47; *Mont. Test. Brit.* 425. —*Suppl.* t. 23. fig. 4; *Flem. Edinb. Encycl.* vii. 80.

Helix nitens, *Gmel. Syst. Nat.* i. 3633? *M. & R. Trans. Linn. Soc.* viii. 198. t. 5. fig. 7; *Turt. Conch. Dict.* 52.

Helix cellaria, *Müll. Verm. Hist.* 230?

Helix nitida, *Drap. Hist. des Moll.* 117. pl. 8. figs. 23–25.

Animal cærulescente-nigricans, lateribus sæpius cinereis. Tentacula cærulescente-grisea.

Habitat in locis humidis sub lapidibus, passim.

Shell pellucid, shining, whorls five, transversely striated finely, luteous horn-coloured on their right side, whitish on their left. Longitudinal diameter rarely exceeding half an inch.

Shell, with its apex depressed. Epidermis, in very fine specimens, elevated into very little, hard scales. Suture between the whorls distinct.

This beautiful species inhabits wet fields, beneath stones, and is very common.

5. ZONITES CRYSTALLINUS.

Z. testâ subviridescente-hyalinâ, nitidâ, anfractibus $4\frac{1}{2}$ transversim tenuissimè strigosis.

Helix crystallina, *Müll. Verm. Hist.* 223; *Drap. Hist. des Moll.* 118. pl. 8. figs. 13, 14.

Habitat in pratis humidis, frequens.

Shell pale greenish, transparent, shining, with four whorls and a half, which are very finely striated transversely.

Inhabits wet meadows: is not uncommon.

Longitudinal diameter one-eighth of an inch.

This species, which has been confounded by most of our collectors with the young of *Z. lucidus*, has lately been distinguished from it by several conchologists, who have supplied me with specimens from several parts of Britain. It is very abundant around London; and is by no means uncommon amongst the rejectamenta of the Thames, between Eton and Battersea.

Genus 30. CHILOTREMA.

Testa depressa, æquilateralis. *Umbilicus* centralis, apertus. *Peritrema* perfectum, reflexum, tenue. *Tentacula superiora* elongata: *inferiora* breviuscula, tenuia.

Shell depressed, equilateral. Umbilicus central, open. Peritreme perfect, reflected, slender. Upper tentacula elongate; under tentacula rather short, and slender.

CHILOTREMA LAPICIDA.

C. testâ rugulosâ, corneâ; anfractibus carinatis, transversim maculatis et substriatis, peritremate albo.

Helix Lapicida, *Linn. Syst. Nat.* xii. i. 1241; *Flem. Edinb. Encycl.* vii. 80; *Penn. Brit. Zool.* iv. 132. t. 83. fig. 121; *Müll. Verm. Hist.* 240; *Mont. Test. Brit.* 435; *Drap. Hist. des Moll.* iii. pl. 7. figs. 35–37; *M. & R. Trans. Linn. Soc.* viii. 187; *Dill. Desc. Cat.* 887; *Turt. Conch. Dict.* 44.

Helix acuta, *Da Costa,* 55. pl. 4, fig. 9.

Habitat in rupibus et sylvis, præsertim in humidis, haud infrequens.

Shell rugulose, horny; spires keeled, transversely spotted and striated; the striæ distant; peritreme entirely white. Longitudinal diameter seven-eighths of an inch. Height nearly three-eighths.

Slightly pellucid, brown or reddish-brown, banded transversely with the same colour, more intense, or with fuscous. Whorls flattened above, moderately convex beneath; their surface, when viewed with a glass, shagreened.

Inhabits rocks and woods, especially such as are moist. It is likewise found on elevated situations; but such instances are rare. It is not uncommon on the borders of Dartmoor; near Padstow, in Cornwall; in the Portland Island; and in the south of Ireland.

Animal reddish-brown, or brownish-black, rarely sooty-black. Sides sometimes greyish. Tentacula generally paler; the outer sides of the upper ones occasionally streaked with black.

Genus 31. ZURAMA.

Testa depressa, æquilateralis. *Umbilicus* centralis, apertus. *Peritrema* ferè perfectum, marginatum, reflexum. *Tentacula superiora* brevia; *inferiora* brevissima.

Shell depressed, equilateral. Umbilicus central, open. Peritreme margined, almost perfect, reflexed. Upper antennæ short; the under ones very short.

ZURAMA PULCHELLA.

Z. epidermide in lineas obliquè-transversas, elevatas digestâ.

Helix pulchella, *Müll. Verm. Hist.* 232 ; *Drap. Hist. des Moll.* 112. pl. 7. figs. 30–32.

Turbo helicinus, *Lightfoot, Phil. Trans.* lxxvi. t. 3. figs. 1–4.

Helix costata, *Müll. Verm. Hist.* 233.

Helix paludosa, *Mont. Test. Brit.* 440 ; *M. & R. Trans. Linn. Soc.* viii. 193. t. 4. fig. 5 ; *Flem. Edinb. Encycl.* vii. 80.

Helix crenella, *Mont. Test. Brit.* 441.

Turbo paludosus, *Turt. Conch. Dict.* 228.

Helix crystallina, *Dill. Desc. Cat.* 909.

Habitat sub lapidibus et inter muscos, passim.

Shell with the epidermis elevated into lines, which are arranged in an obliquely-transverse direction. Longitudinal diameter one-eighth of an inch.

Colour whitish and subpellucid. Epidermis sometimes slightly tinted with brownish.

Animal hyaline, whitish, very rarely tinted with grey or luteous. Tentacula generally paler than the back. Eyes intensely black.

Inhabits moss, and is often found beneath stones. It occurs in Greenwich Park ; is common among the rejectamenta of the Thames, and beneath stones ; on Arthur's Seat, and the Pentland Hills. It is generally diffused throughout Great Britain.

The raised epidermis is very easily rubbed off ; and in this state it has been frequently described as a distinct species.

STIRPS V.

Genus 32. ELISMIA.

Elismia, *Prideaux MSS.*

Testa valdè elongato-conica. *Apertura* elongata. *Peritrema* tenue ; posticè nullum. *Umbilicus* perforatus. *Tentacula superiora* mediocria : *inferiora* breviuscula.

Shell very elongately-conic. Aperture elongate. Peritreme slender, wanting behind. Umbilicus perforate. Upper tentacula moderate: inferior ones short.

ELISMIA FASCIATA.

E. testâ oblongo-conicâ, albidâ; anfractibus subobliquè striolatis et fasciatis.

Turbo fasciatus, *Mont. Test. Brit.* 346.

Bulimus acutus, *Drap. Hist. des Moll.* 77. pl. 4. fig. 29.

Lymnæa fasciata, *Flem. Edinb. Encycl.* vii. 78.

Helix acuta, *Dill. Desc. Cat.* 965.

β. albida, anfractibus ad sinistram nigris, sæpius albo transversim lineatis.

Turbo fasciatus, *Penn. Brit. Zool.* iv. 131. pl. 82. fig. 119.

γ. nigra aut perfusca, anfractibus obliquè albo-lineatis.

Animal cinereum aut testaceum; tentacula pallida.

Habitat in arenosis aridis et subulosis maritimis, vulgatissima.

Shell oblong-conic, whitish, the whorls somewhat obliquely striated finely, and banded with black.

The second variety is whitish, the left side of the whorls black; the black very frequently transversely lineated with white.

The third variety is black or deep-fuscous, the whorls obliquely lineated with white. Height three-quarters of an inch.

Animal cinereous or testaceous. Tentacula pale.

Inhabits many of the sandy districts of Britain that immediately border on the sea. It is common in the sandbanks around Bigbury Bay, in Devon; Whitsand Bay, in Cornwall; the sandy shores of South Wales; in Anglesea; on the coast of Dorset; on most of the sandy shores in the south of Ireland; and in the Isle of Man.

Var. γ was communicated to me by my kind friend, the Provost of Eton, who found it under the Chesil Bank, in Portland Island.

STIRPS VI.

Synopsis Generum.

Peritrema incrassatum, reflexum, posticè nullum. Umbilicus perforatus	33. Ena.
Peritrema incrassatum, posticè inchoatum. Umbilicus nullus	34. Zua.

Genus 33. Ena.

Ena, *Prideaux MSS.*

Testa ovato-oblonga, ad apicem obtusiuscula. *Apertura* semiovalis. *Peritrema* incrassatum, reflexum; posticè nullum. *Umbilicus* perforatus. *Tentacula superiora* elongata, ad apicem supernè oculigera. *Oculi* minutissimi, rotundati, non prominuli.

Shell ovately-oblong, its apex rather obtuse. Aperture semioval. Peritreme thickened, reflected; wanting behind. Umbilicus perforate. Upper tentacula elongate, bearing the eyes at the upper aspect of their extremities. Eyes very minute, round, not prominent.

The *Enæ* inhabit moist places, beneath dead leaves and stones, or amongst rocks.

1. Ena montana.

E. testâ fuscâ; anfractibus transversim striatis; peritremate albo.

Bulimus montanus, *Drap. Hist. des Moll.* 74. pl. 4. fig. 22.

Helix Lackhamensis, *Mont. Test. Brit.* 394. t. 12. fig. 3; *M. & R. Trans. Linn. Soc.* viii. 212; *Flem. Edinb. Encycl.* vii. 78; *Dill. Desc. Cat.* 953; *Turt. Conch. Dict.* 64.

Animal cinereum, nonnunquam subnigricante-tessellatum. Oculi atri.

Habitat in sylvis, et nemoribus, sub foliis latitans.

Shell fuscous, whorls transversely striated; peritreme white. Height nearly three-quarters of an inch.

Animal cinereous, sometimes tessellated with pale-blackish. Eyes black.

Ena montana was first discovered by Montagu, in woods, round Lackham, and in Bow Wood, in Wiltshire. It has since been found, by Mr. J. Miller, in woods near Bristol, in considerable plenty.

On the Continent this species is almost confined to elevated regions.

2. Ena obscura.

E. testâ corneo-fuscâ, subobtusâ; anfractibus transversim substriatis; peritremate albo.

Helix obscura, *Müll. Verm.* 302; *Mont. Test. Brit.* 390; *M. & R. Trans. Linn. Soc.* viii. 212.

Bulimus hordeaceus, *Brug. Encycl. Méth.* 62.

Bulimus obscurus, *Drap. Hist. des Moll.* 74. pl. 4. fig. 23.

Lymnæa obscura, *Flem. Edinb. Encycl.* vii. 78.

Turbo rupium, *Da Costa,* 90?

Animal cinereum, rariùs rufescens; supra fuscescens aut saturatius fuscum.

Habitat sub lapidibus, et foliis emortuis.

Shell horny-fuscous, almost obtuse, the whorls faintly striated transversely, peritreme white. Height three-eighths of an inch.

Animal cinereous, rarely reddish; back and upper parts of the sides inclining to fuscous, or intensely fuscous.

This species is found beneath stones and dead leaves. It sometimes occurs on the trunks of trees after continued rain. It is common under the Salisbury Craigs; and in Rivelstone Wood, near Edinburgh; in the woods round Bristol; and at Torquay, in Devon. I observed it once near the Eagle's Nest Rock, on the Lake of Killarney. Montagu found it in abundance on the summit of the hill, in Portland Island, under stones.

Genus 34. Zua.

Testa ovato-oblonga, ad apicem subobtusa. *Apertura* acuminato-ovata. *Peritrema* incrassatum, posticè inchoatum.

Umbilicus nullus. *Tentacula superiora* mediocria: *inferiora* breviuscula.

Shell ovately-oblong, its apex somewhat obtuse. Aperture acuminately-ovate. Peritreme thickened; only commenced behind. Umbilicus none. Superior tentacula moderately long; inferior ones rather short.

ZUA LUBRICA.

Z. testâ pellucidâ, corneâ, glaberrimâ, nitidissimâ.

Helix lubrica, *Müll. Verm. Hist.* 303; *Mont. Test. Brit.* 390; *M. & R. Trans. Linn. Soc.* viii. 213; *Turt. Conch. Dict.* 64.

Turbo glaber, *Da Costa,* 87?

Bulimus lubricus, *Brug. Encycl. Méth. Vers.* 23; *Drap. Hist. des Moll.* 75. pl. 4. fig. 24.

Lymnæa lubrica, *Flem. Edinb. Encycl.* vii. 78.

Helix subcylindrica, *Dill. Desc. Cat.* 952.

Animal cærulescente-nigricans, subtus cinereum. Tentacula nigricantia.

Habitat sub lapidibus et muscis, in campis, et nemoribus.

Shell pellucid, horny, very smooth, and very shining. Height rather more than one quarter of an inch.

Animal bluish, inclining to sooty-blackish, underneath cinereous. Tentacula inclining to sooty-black.

Zua lubrica is generally diffused throughout Britain. It is found under stones, in moss, amongst the roots of grass; and sometimes in the trunks of trees after rain.

STIRPS VII.

The genera of this stirps have been referred to the genus Turbo, by the Linnæan school. We have but two of the genera in Britain, one named Clausilia, by Drapernaud, who first discovered the existence of its internal spiral operculum, which is wanting in the new genus Balæa.

All the members of this stirps that have hitherto been discovered are reversed.

Synopsis Generum.

Peritrema tenuiter marginatum, posticè fortiter inchoatum. Umbilicus perforatus	35. BALÆA.
Peritrema perfectum, marginatum, reflexum. Umbilicus canaliculatus.	36. CLAUSILIA.

Genus 35. BALÆA.

Testa valdè elongato-conica; ad apicem extremum subobtusiuscula. *Apertura* breviter semiovalis. *Peritrema* tenuiter marginatum, posticè fortiter inchoatum. *Umbilicus* perforatus. *Operculum* nullum. "*Tentacula* brevia, subclavata."

Shell very elongately-conic; its extreme apex rather obtuse. Aperture short-semioval. Peritreme slightly margined, strongly commenced behind. Umbilicus perforate. Operculum none. "Tentacula short, somewhat clavate."

Two European species only have yet been observed. I have two exotic species, which were communicated to me by Captain Carmichael, who found them amongst the elevated rocks of Tristan d'Acunha.

BALÆA FRAGILIS.

B. testâ aperturâ posticè ad sinistram 1-plicatâ, anfractibus transversim elevato-striatis.

Turbo perversus, *Mont. Test. Brit.* 355. t. 11. fig. 12; *Penn. Brit. Zool.* iv. 130?; *M. & R. Trans. Linn. Soc.* iv. 130; *Dill. Desc. Cat.* 876; *Turt. Conch. Dict.* 226.

Pupa fragilis, *Drap. Hist. des Moll.* 68. pl. 4. fig. 4.

Clausilia fragilis, *Féruss. Ess. d'une Méth. Conch.* 51.

Odostomia perversa, *Flem. Edinb. Encycl.* vii. 76.

Habitat in arborum truncis et in fissuris rupium, satis frequens.

Hinder part of the aperture of the shell on the left side, with one elevated fold; whorls with transversely-elevated striæ.

Although *Balæa fragilis* is tolerably common on the trunks of trees, it is rarely found with a perfectly formed aperture to its shell. In the perfect state it may be generally taken, in no inconsiderable numbers, in the crevices of the loose rock, at the base of Arthur's Seat, a little to the north of the basaltic

pillars. I have never seen good specimens from any other spot. Height three-eighths of an inch. Colour pale-horn, sometimes tinted with dirty-luteous.

Genus 36. CLAUSILIA.

Clausilia, *Drapernaud, Férussac.*

Testa valdè elongato-conica, ad apicem extremum submamillato-obtusa. *Apertura* obovalis, ad sinistram posticè abruptè coarctata. *Peritrema* perfectum, marginatum, reflexum. *Umbilicus* canaliculatus. *Operculum* internum, posticè processu tenui, spirali, elastico instructum. *Tentacula inferiora* brevissima.

Synopsis Specierum.

* *Operculo emarginato.*

1. *laminata.* Testâ subventricosâ, corneâ, lævi, nitidâ, pellucidâ; aperturâ bilamellatâ.

** *Operculo integro.*

2. *Rolphii.* Testâ subventricosâ, subpellucidâ; anfractibus transversim elevato-striatis; aperturâ bilamellatâ: interstitio biplicato.
3. *biplicata.* Testâ fusiformi-ventricosâ, subopacâ; anfractibus transversim elevato-striatis; aperturâ bilamellatâ.
4. *rugosa.* Testâ fusiformi, gracili, subpellucidâ; anfractibus transversim crebrò elevato-striatis; aperturâ trilamellatâ; lamellâ 1 posticâ, 1 dextrâ, alterâ parvulâ anticâ.

Shell very elongately-conic, its apex terminated by a somewhat obtuse nipple. Aperture oblongately-ovate, its hinder margin abruptly contracted on the left side. Peritreme perfect, margined, reflected. Umbilicus canaliculated. Operculum internal; its hinder part produced into a slender spiral and elastic process, terminating more or less gradually in a point. The aperture has generally two elevated lamellæ, which ascend into the last whorl, gradually approximate, but do not touch each other. Inferior tentacula very short.

This genus was first discovered by Drapernaud, who named it *Clausilia,* from its internal operculum, a character not yet observed in any other genus. About forty species are known, four of which are natives of Britain.

The operculum affords some characters to assist in specific distinctions. Its posterior spiral extremity is rather abruptly notched near its apex on one side, and is then gradually acuminated in all the indigenous species.

1. CLAUSILIA LAMELLATA.

C. testâ subventricosâ, corneâ, lævi, nitidâ, pellucidâ; aperturâ bilamellatâ.

Helix bidens, *Müll. Verm. Hist.* 315.

Bulimus bidens, *Brug. Encycl. Méth.* xvi. *Vers.* 352.

Turbo laminatus, *Mont. Test. Brit.* 359. t. 11. fig. 4; *M. & R. Trans. Linn. Soc.* viii. 179; *Dill. Desc. Cat.* 874; *Turt. Conch. Dict.* 224.

Clausilia bidens, *Drap. Hist. des Moll.* 68.

Odostomia laminata, *Flem. Edinb. Encycl.* vii. 76.

β. albida.

Animal cinereum. Latera grisea, albido-sparsa. Dorsum interdum nigrescens. Operculum prope apicem anticum ad sinistram emarginatum; apice ipso truncato, emarginato: laciniis rotundatis.

Habitat in sylvis, sæpius sub muscis; β in cretaceis.

Shell somewhat ventricose, horny, surface as if smooth, shining and pellucid; aperture with two white lamellæ. Peritreme white. Height three-quarters of an inch.

Although this species appears at first sight to be perfectly smooth, yet, on examination, the whorls will be found to be faintly striated transversely. In fine specimens these striæ may always be distinctly seen on the last whorl, and on the right side of all the other whorls.

Inhabits woods, and is generally to be found beneath moss. In wet weather it frequently ascends the trunks of trees. The white variety was communicated to me by my kind friend, J. F. Stephens, Esq. who found it in the chalky districts around Darent, in Kent, where it is occasionally found.

2. CLAUSILIA ROLPHII. Pl. 8. fig. 9.

C. testâ subventricosâ, subpellucidâ; anfractibus transversim elevato-striatis; aperturâ bilamellatâ: interstitio biplicato.

Animal nigrum; tentacula dilutiora.

Habitat in Angliâ prope Charlton, in Cantio, rarissima.

Shell somewhat ventricose, slightly pellucid; the whorls with elevated striæ; aperture with two lamellæ; the space between them with two folds. Height five-eighths of an inch.

Colour horny brown. Striæ regular and somewhat distant. Operculum white, the anterior or dilated portion rather wide.

This new species was discovered by Mr. Rolph, in Charlton Wood, Kent, and it has since been found there by myself under moss. The wood having been cut down, and the land cultivated, no specimens have been taken for several years.

In some respects this shell is allied to *C. plicatula*, of Drapernaud, but is always larger, more ventricose, and the striæ are more distant.

Animal black; the tentacula of a paler hue.

3. CLAUSILIA BIPLICATA.

C. testâ fusiformi-ventricosâ, subopacâ; anfractibus transversim elevato-striatis; aperturâ bilamellatâ.

Turbo biplicatus, *Mont. Test. Brit.* 361; *M. & R. Trans. Linn. Soc.* viii. 179; *Turt. Conch. Dict.* 224; *Dill. Desc. Cat.* 874.

Clausilia ventricosa, *Drap. Hist. des Moll.* 71. pl. 4. fig. 14.

Odostomia biplicata, *Flem. Edinb. Encycl.* vii. 77.

Animal nigrum, tentaculis et pede dilutioribus.

Habitat in paludosis, sub cortice salicum emortuarum circa Londinum, frequens.

Shell club-shaped, ventricose, somewhat opake; the whorls with transverse elevated striæ; aperture with two lamellæ. Height three-quarters of an inch.

Animal black, its tentacula and foot pale black. Operculum anteriorly rounded.

C. biplicata is readily distinguished from its British congeners by its superior size, if we except *C. laminata*, which belongs to another division. The colour of the shell, in a fine state, is deep-red fuscous, or intensely chocolate-brown; the peritreme and lamellæ white.

This species is found alive in the environs of London, beneath the bark of old willows, and is thrown up amongst the rejectamenta of the Thames in great profusion, especially after floods. It was first discovered to inhabit Britain by Montagu, who took it at Easton Gray, in Wiltshire.

4. Clausilia rugosa.

C. testâ fusiformi, gracili, subpellucidâ; anfractibus transversim crebrò elevato-striatis; aperturâ trilamellatâ: lamellâ 1 posticâ; 1 dextrâ; alterâ abbreviatâ, anticâ.

Turbo bidens, *Penn. Brit. Zool.* iv. 131; *Mont. Test. Brit.* 357. t. 11. fig. 7.

Clausilia rugosa, *Drap. Hist. des Moll.* 73.

Turbo nigricans, *M. & R. Trans. Linn. Soc.* viii. 180; *Dill. Desc. Cat.* 875.

Odostomia nigricans, *Flem. Edinb. Encycl.* vii. 76.

Animal nigrum aut nigricans. Operculum anticè subacuminato-rotundatum.

Habitat in muscosis, passim.

Shell club-shaped, slender, somewhat pellucid; the whorls with thickly-set elevated striæ; aperture with three lamellæ; one behind, one on the right; the third shortened, anterior. Height nearly half an inch.

Colour chocolate-brown, or deep fuscous, tinged with red. Peritreme whitish, or slightly tinted with reddish.

Animal pale or dark sooty-black. Operculum anteriorly slightly acuminated, and rounded.

Clausilia rugosa is found in every part of Britain in great plenty. It resides generally under moss.

I have received from the Provost of Eton a *Clausilia,* with an imperfectly formed aperture, having the general habit of *C. rugosa,* from which it differs, in being more elegant and slender in form, and in wanting the elevated striæ, excepting at the extremity of the last whorl, where they are very evident. It has much the air of the Swiss *C. parvula,* of *Studor,* which is very

faintly striated, excepting on its last whorl. The Provost has a similar shell in his possession, which was taken by himself; but as the aperture is still in an infant state, I must refrain from venturing any opinion as to its specific distinctions.

STIRPS VIII.

Genus 37. AZECA.

Testa acuminato-turrita; ad apicem subobtusiuscula. *Apertura* ovata, ad dextram posticè valdè acuminata. *Peritrema* crassum, acuminatum, integrum. *Umbilicus* nullus. *Tentacula superiora* mediocria, ad apicem supernè paululum dilatata; *inferiora* breviuscula.

Shell acuminately-turrited, its apex rather obtuse. Aperture ovate, its left side posteriorly very much acuminated. Peritreme thick, acuminate, entire. Umbilicus none. Upper tentacula moderate, slightly dilated at the upper aspect of their extremities. Under ones short.

AZECA MATONI. Tab. 8. figs. 7, 8.

A. testâ glaberrimâ, pellucidâ, nitente, corneâ, anfractibus planis, peritremate dentibus duobus obtusis: sinistro majore, aperturâ supra peritrema posticè lamellis tribus: mediâ longissimâ.

Turbo tridens, *Pult. Cat. Dorset.* 46; *Mont. Test. Brit.* 338; *M. & R. Trans. Linn. Soc.* viii. 181; *Turt. Conch. Dict.* 219; *Dill. Desc. Cat.* 877?

Animal nigricante-cinereum; dorsum et tentacula nigricantia, aut atro-nigricantia. Tentacula superiora subtus, inferiora ad apicem, hyalina, aut subpellucida. *Variat* pede obscurissimè nigricante.

Habitat ad aditum sylvæ Amersham, rarior.

Shell very smooth, pellucid, glossy, horny; the whorls flattened. Peritreme with two obtuse teeth, the left one largest. The aperture above the peritreme behind, with three lamellæ; the middle one longest. Height one-quarter of an inch.

Animal cinereous, passing into sooty black. Tentacula sooty-black, or black, passing into sooty-black. Under aspect of the upper tentacula, and the extremities of the under ones, hyaline, or somewhat pellucid. The foot is sometimes of a very obscure sooty-black colour.

Peritreme slightly tinted with rose-red, or flesh colour; teeth and lamellæ of the aperture whitish.

This elegant shell, which has been unknown to Conchologists for several years, was lately discovered near the entrance of a wood at Amersham, in Bucks, by my learned friend, the Provost of Eton, who most kindly supplied me with the living specimens, from which the figures have been executed.

As it is not the species referred to by English Conchologists, and as it has more than three teeth, I have named it after Dr. W. G. Maton, one of the authors of that elaborate historical Account of Testaceological Writers, which graces the seventh volume of the Transactions of the Linnæan Society of London.

STIRPS IX.

The genera of this Stirps have all an obtusely turrited shell, the aperture of which has a margined peritreme on its lateral and anterior aspects, and a rudimentary peritreme in its posterior aspect. The umbilicus is perforated.

Synopsis Generum.

Testa cylindrica, acuminato-turrita, ad apicem obtusiuscula. Tentacula superiora mediocria: inferiora brevia	38. ABIDA.
Testa obtusè turrita, ad apicem abruptè obtusa. Tentacula superiora mediocria: inferiora brevia	39. PUPILLA.
Testa obtusè turrita, ad apicem subgradatim obtusa. Tentacula superiora mediocria: inferiora brevissima, obsoleta	40. VERTIGO.

Genus 38. ABIDA.

Chondrus, 2. *Cuvier.*
Abida, *C. Prideaux MSS.*

Testa cylindrica, acuminato-turrita; ad apicem obtusiuscula. *Apertura* ovata, posticè truncata. *Peritrema* marginatum, reflexum, posticè inchoatum. *Umbilicus* perforatus. *Tentacula superiora* mediocria: *inferiora* brevia.

Shell cylindric, acuminately-turrited; its apex somewhat obtuse. Aperture ovate, truncate behind. Peritreme margined, reflexed, commenced behind. Umbilicus perforate. Upper tentacula moderate.

Although there are several European species belonging to this genus, one only is found in Britain.

ABIDA SECALE.

A. testâ anfractibus convexiusculis, obliquè striatis, aperturâ 7, 8–plicatâ.

Pupa Secale, *Drap. Hist. des Moll.* 64. pl. 3. figs. 49, 50.
Turbo juniperi, *Mont. Test. Brit.* 340. t. 12. fig. 12; *M. & R. Trans. Linn. Soc.* viii. 182; *Dill. Desc. Cat.* 877; *Turt. Conch. Dict.* 221.
Odostomia juniperi, *Flem. Edinb. Encycl.* vii. 76.
Chondrus Secale, *Cuv. Règ. Anim.* ii. 408.
Animal nigricans; tentacula superiora internè subtus albida.
Variat lateribus lutescentibus aut fuscis.
Habitat in cretaceis sub muscis et lapidibus.

Shell, with its whorls rather convex, and obliquely striated transversely. Aperture with seven or eight lamellæ. Height five-sixteenths of an inch.

Colour pale brown, sometimes inclining to fuscous. Peritreme and teeth white or whitish; the former sometimes tinted with pale flesh-colour. The dorsal aspect of the extremity of the last whorl above the peritreme is whitish, marked with three white lines, which correspond to the three anterior folds of the shell, which are in fact seen through the shell at this point.

Abida Secale is by no means uncommon in chalky and oolite districts. It occurs in abundance under stones, on the sides of Lackington Hill, near Cheltenham; and is found more sparingly on the sides of the whole of that oolite range. Montagu found it near Easton Grey; and near Devizes, in Wiltshire, on old mossy walls, and at the roots of juniper. It is sometimes found near Corfe Castle, and Abbotsbury, in Dorsetshire; and near Hertford. I found it in tolerable abundance on the chalky hills round Little Hampton, in Sussex.

Animal blackish; upper tentacula with their under aspects internally whitish. The sides of the body are sometimes fuscous, or approaching to luteous.

Genus 39. PUPILLA.

Testa obtusè-turrita; ad apicem abruptè obtusa. *Apertura* subovata posticè truncata. *Peritrema* marginatum, reflexum, posticè inchoatum. *Umbilicus* perforatus. *Tentacula superiora* mediocria: inferiora brevia.

Shell obtusely turrited; its apex abruptly obtuse. Aperture somewhat ovate, truncated posteriorly. Peritreme margined, reflexed, commenced behind. Umbilicus perforate. Upper tentacula moderate: under ones short.

1. PUPILLA DRAPERNAUDII.

P. aperturâ posticè lamellâ elongatâ ad peritrematis juncturam dextram attingente.

Turbo muscorum, *Mont. Test. Brit.* 335; *M. & R. Trans. Linn. Soc.* viii. 182; *Dill. Desc. Cat.* 878.

Pupa umbilicata, *Drap. Hist. des Moll.* 62.

Odostomia muscorum, *Flem. Edinb. Encycl.* vii. 76.

Animal cinereum, griseum aut pallidè fuscescens.

Habitat sub muscis passim.

Aperture of the shell behind, with an elongate lamella, which joins the peritreme at its junction with the hinder aspect of the aperture, on the right side.

Whorls somewhat glossy, and transversely striated. Colour yellow-horn, slightly transparent. Peritreme and lamella white. Height three-sixteenths of an inch.

This species is found under stones and moss in most parts of

Britain. It is not the *P. Muscorum* of the various continental writers, quoted by British conchologists.

Animal cinereous, grey, or very pale fuscous.

2. PUPILLA MARGINATA.

P. aperturâ posticè lamellâ parvâ, centrali instructâ.

Pupa marginata, *Drap. Hist. Nat. des Moll.* 61. pl. 3. figs. 36–37.

Turbo chrysalis, *Turt. Conch. Dict.* 220.

Animal nigricante-griseum; tentacula subtus pallida; pes olivaceus aut griseus.

Habitat sub lapidibus et muscis.

Aperture of the shell behind, with a little lamella in the middle. Height three-sixteenths of an inch. Colour chocolate, or ferruginous-brown, somewhat pellucid. Peritreme tinted with reddish. Lamella white. Whorls slightly striated transversely, and somewhat glossy.

This species is found alive near Hertford and Norwich. It is very common amongst the rejectamenta of the Thames, between Eton and London; and likewise occurs amongst the rejectamenta of the river Exe, in Devon.

Animal blackish-grey; tentacula pale beneath; foot olivaceous, or grey.

Genus 40. VERTIGO.

Vertigo, *Müller*.

Testa obtusè-turrita; ad apicem subgradatim obtusa. *Apertura* subpyriformis, ad dextram impresso-angulata. *Peritrema* marginatum, reflexum, internè fortiter inchoatum, rectum. *Umbilicus* perforatus. *Tentacula superiora* mediocria, ad apicem paululum dilatata: *inferiora* brevissima, obsoleta.

Shell obtusely turrited, its apex very obtuse. Aperture somewhat pear-shaped, with an impressed sinus on its right side. Peritreme margined and reflexed, internally strongly commenced and straight. Umbilicus perforate. Upper tentacula moderate, slightly dilated at their extremities: under ones extremely short, obsolete.

1. Vertigo palustris. Pl. 8. fig. 10.

V. testâ ventricosâ, aperturâ 8–dentatâ: dentibus 3 posticis; 3 anticis; 1 dextro et 1 sinistro.

Turbo sexdentatus, *Mont. Test. Brit.* 337.

Pupa antivertigo, *Drap. Hist. des Moll.* 60. pl. 3. figs. 32, 33.

β. aperturâ 9–dentatâ.

Habitat in paludibus.

Testa intensè fusco-badia, peritremate albido. Apertura dentibus dissimilibus: dentes tres antici inæquales; sinister brevior, medius longior: dens sinister cæteris crassior: dens dexter minutus, tuberculiformis: dentes postici inæquales; sinister minor; medius dextro sublongior.

Animal cærulescente-nigrum.

Shell ventricose, of a deep brown-chestnut colour. Peritreme whitish. Aperture, with eight teeth, varying in size; the three anterior, unequal; the left one shortest; the middle one longest; the left tooth thicker than any of the rest: the right tooth very small, tuberculiform; the three hinder teeth unequal; the left smallest; the middle rather longer than the right one.

The ninth tooth in var. β. is tuberculiform, and is situated between the middle anterior and the left anterior tooth.

I observed but one specimen of this shell in the collection of Montagu, who had not distinguished it from the following species; and have since received living specimens from Mr. J. E. Gray, who found them on *Isolepis fluitans*, in a marsh near Wimbledon Common.

Animal bluish-black. Height one-tenth of an inch.

2. Vertigo vulgaris.

V. testâ subteretiusculâ, aperturâ tenuiter sinuatâ, 5-dentatâ: dentibus tribus anticis; 1 sinistro et 1 postico, centrali.

Testa fusco-brunnea. Peritrema pallidè subroseum aut albidum. Apertura dentibus anticis inæqualibus; medio longiore: dente sinistro aliis crassiore.

Habitat in paludibus.

Shell fuscous-brown, somewhat rounded, its aperture slightly sinuated, with five teeth; three anterior; of these, the middle

is longest; the left tooth is thicker than any of the others. Peritreme very pale rose colour, or whitish.

Vertigo vulgaris occurs in great plenty on the banks of the Thames, between Battersea and Eton, amongst the floating vegetable rejectamenta of the river; and in marshes near Bath and Kingsbridge. Height half an inch.

3. Vertigo heterostropha.

V. testâ sinistrorsâ.

Vertigo pusilla, *Müller, Verm.* 320.

Turbo Vertigo, *Mont. Test. Brit.* 363. t. 12. fig. 6; *M. & R. Trans. Linn. Soc.* viii. 183; *Turt. Conch. Dict.* 226; *Dill. Desc. Cat.* 880.

Pupa Vertigo, *Drap. Hist. des Moll.* 61?

Habitat in muscis, rarissima.

Shell reversed.

The only specimen of this species that I have seen, is in the collection of my friend Mr. Stephens; but as it is in a young state, I cannot describe the number and position of the lamellæ of the aperture.

Montagu describes the shell as having "three white teeth; two on the *Columella*, and one on the exterior lip opposite."

I have quoted Draparnaud with doubt, as he has described the aperture to be furnished with seven folds or teeth; "two on the column, two on the lateral border, and two or three on the opposite side."

It is scarcely necessary to observe, that this species differs from the two preceding ones, in being reversed, which is its constant character.

Height one-twelfth to one-tenth of an inch.

FAMILY III. CARYCHIADÆ.

Tentacula duo, ad basin oculigera. *Testa* aperturâ plicatâ aut dentatâ. *Umbilicus* sæpè clausus, in indigenis saltem perforatus.

Synopsis Generum.

Testa ventricoso-turrita; ad apicem obtusa. Peritrema marginatum, subreflexum; posticè tenuiter inchoatum. Umbilicus ferè clausus	41. Carychium.
Testa acuminato-turrita; ad apicem mamillata. Peritrema internè marginatum, posticè fortiter inchoatum. Umbilicus subclausus	42. Iaminia.
Testa acuminato-turrita; ad apicem mamillata. Peritrema internè marginatum, posticè nullum. Umbilicus apertus	43. Alexia.

The animals composing this family have two tentacula furnished at their base with eyes. The aperture of the shell is always folded or toothed. The umbilicus is perforate in the indigenous genera; all of which have their two last whorls remarkably larger than the others.

Genus 41. Carychium.

Carychium, *Müller, Leach.*

Tentacula duo cylindracea, brevia, obtusa, posticè ad basin oculigera. *Testa* ventricoso-turrita, ad apicem obtusa. *Apertura* ad dextram et ad sinistram subrotundata. *Peritrema* marginatum, subreflexum; posticè tenuiter inchoatum. *Umbilicus* subclausus.

Tentacula two, cylindric, short, obtuse, bearing eyes at their base behind. Shell ventricosely-turrited, its apex obtuse. Left and right side of the aperture somewhat rounded. Peritreme margined, and somewhat reflexed; slightly commenced behind. Umbilicus somewhat closed.

Carychium minimum.

C. testâ pellucido-albidâ, nitidâ; anfractibus transversim striolatis; aperturâ 3-dentatâ.

Carychium minimum, *Müll. Verm. Hist.* ii. 125; *Leach, Zool. Misc.* i. 84.

Helix Carychium, *Gmel. Syst. Nat.* i. 3665.

Auricula minima, *Drap. Hist. des Moll.* 57.

Turbo Carychium, *Mont. Test. Brit.* ii. 339; *M. & R. Trans. Linn. Soc.* viii. 184; *Dill. Desc. Cat.* 880; *Turt. Conch. Dict.* 221.

Odostomia Carychium, *Flem. Edinb. Encycl.* vii. 76.

Testa (animale vivente) pallidè brunnea; anfractus ultimus totus et penultimus ad sinistram albi.

Animal pallidè griseum, testaceum aut flavidum.

Habitat in humidis muscosis, et ad graminum radices frequens.

Shell pellucidly-white, or greenish, glossy; the whorls faintly striated transversely. Aperture with three teeth. Height one-tenth of an inch.

Colour of the shell, with the animal in it, pale brown; the whole of the last, and the left of the last whorl but one, white.

Animal pale grey, testaceous, or yellowish. Aperture of the shell with one tooth behind, placed towards the left; another tooth, which is obscure on the left side; a third tooth on the right of the anterior aspect.

C. minimum is not uncommon in moist situations under moss, and amongst the roots of grass. It is abundant amongst the rejectamenta of the Thames, between Eton and London.

Genus 42. IAMINIA.

Auricula, *Draparnaud.*

"*Tentacula* duo brevia, cylindrica, internè supra oculigera." *Testa* acuminato-turrita; ad apicem mamillata. *Apertura* ad sinistram rotundata, acuminata ad dextram. *Peritrema* internè marginatum, posticè fortiter inchoatum. *Umbilicus* subclausus.

"Tentacula two, short, cylindric; bearing eyes on the upper part of their inner aspect, at their base."

Shell acuminately-turrited; its apex mamillated. Aperture on the left side rounded; on the right side acuminated. Peritreme internally margined, strongly commenced behind. Umbilicus nearly closed. Upper whorls without any internal continuation of the spire!

1. IAMINIA BIDENTATA.

I. testâ lævi, anfractibus (ultimo excepto) planis, aperturâ posticè ad sinistram biplicatâ.

Voluta bidentata, *Mont. Test. Brit. Supp.* 100. pl. 30. fig. 2; *Flem. Edinb. Encycl.* vii. 83; *Dill. Desc. Cat.* 507; *Turt. Conch. Dict.* 253.

Habitat in Danmoniæ æstuariis et in "Freto Forth dicto," rarior.

Shell white, smooth, with all the whorls, excepting the last, flat; left side of the aperture behind, with two folds. Height rather more than one quarter of an inch.

"Animal whitish, or pale cinereous. Tentacula short, cylindric, externally blackish. Eyes very black."—*Cranch.*

Inhabits the mouth of the river, near Bantham; the Kingsbridge Estuary; and Mill Bay; it "has been found also in the Frith of Forth, near the Bass Rock" (*Rawlins*); and at Weymouth and Tenby by the Provost of Eton.

Genus 43. ALEXIA.

Testa acuminato-turrita, ad apicem mamillata. *Apertura* ad sinistram rotundata, ad dextram acuminata. *Peritrema* internè marginatum; posticè nullum. *Umbilicus* apertus.

Shell acuminately-turrited; its apex mamillated. Left side of the aperture rounded; the right side acuminate. Peritreme margined internally; wanting behind. Umbilicus open.

This genus, as well as Jaminia, in the adult state, has no divisions in the upper part of its spire.

1. ALEXIA DENTICULATA.

A. testâ anfractibus plano-convexis, transversim striolatis, subnitidis; aperturâ posticè 4-plicatâ, anticè tuberculatâ.

Voluta denticulata, *Mont. Test. Brit.* 234; *M. & R. Trans. Linn. Soc.* viii. 130; *Flem. Edinb. Encycl.* vii. 83; *Dill. Desc. Cat.* 506; *Turt. Conch. Dict.* 249?

Voluta ringens, *Turt. Conch. Dict.* 250.

Habitat in æstuariis.

Shell pellucid horn-coloured, the whorls plano-convex, rather glossy, and finely striated transversely. Aperture with four folds behind, and several tubercles in front. Height half an inch.

This shell varies very much in size; and in the young state has fewer teeth, or folds. In adult shells, the posterior aspect of the aperture has four folds; the first, on the left, coalescing with the peritreme; the second, largest; the third and fourth, gradually smaller. The tubercles, on the anterior aspect, are very irregular in size, with regard to each other and in number. I have counted eight in one adult, and only three in another. These tubercles, as well as all the folds, are white.

This species seems to be entirely confined to estuaries; it is very common in Mill Bay; and at the mouth of the Tamar, near Plymouth; at the mouth of the river, near Barnstaple, in Devon; at the mouth of the Southampton river; and at Portsmouth. I found it likewise at the mouth of the Cork river; and at Dungarvon, in Ireland, in abundance. My friend, Mr. Stephens, informs me, that he has found dead specimens amongst the rejectamenta of the Thames as high as Battersea. Hence it may be inferred to inhabit the mouth of that river.

FAMILY IV. LIMNADÆ.

Pulmonés aquatiques, *Cuvier.*

Tentacula duo internè ad basin oculigera; ad apicem sæpiùs acuminata. *Testa* turrito- aut involuto-spiralis. *Apertura* simplex, inermis.

Habitant in stagnis, paludibus, et in aquis lentè fluentibus; phytophagæ; aëra elasticum respirantes.

Stirpium et Generum Synopsis.

Stirps 1. Testa dextrorsùm elevato-spiralis. Ultimus anfractibus maximus. Tentacula deplanata, ad apicem gradatim acuminata.

* *Apertura testæ ad dextram acuminata. Peritrema ad sinistram crassius, reflexum; posticè fortissimè inchoatum. Umbilicus perforatus.*

Testa spirâ valdè, subgradatim elevatâ, conico-subulatâ. Tentacula elongata. Pallium non dilatatum .... 45. Stagnicola.

Testa spirâ brevissimâ, abruptè formatâ, ad apicem acuminatâ. Tentacula latissima. Pallium non dilatatum .... 46. Gulnaria.

** *Apertura ad dextram acuminato-rotundata. Peritrema* 0. *Umbilicus* 0.

Testa spirâ brevissimâ, depressiusculâ. Tentacula latissima. Pallium testam tegens. .... 47. Myxas.

Stirps 2. Testa sinistrorsum elevato-spiralis. Ultimus anfractus maximus. Peritrema ad dextram crassius. Umbilicus 0. Tentacula setacea.

Testa ovata, spirâ subabruptè elevatâ, ad apicem obtusiusculâ. Pallium anfractûs ultimi latera et dorsum tegens .... 48. Physa.

Testa altè acuminato-turrita; spirâ ad apicem obtusiusculâ. Pallium non dilatatum .... 49. Nauta.

Stirps 3. Testa sinistrorsum involuto-spiralis. Peritrema posticè inchoatum. Tentacula setacea aut filiformia.

Testa internè unicamerata. Tentacula setacea .... 50. Planorbis.

Testa internè multi-camerata: cameris semiformatis. Tentacula filiformia. 51. Hemithalamus.

Tentacula two, generally acuminated at their extremities; bearing eyes at their bases internally.

Shell turrited, or involutely-spiral; its aperture simple; without denticulations.

All the *Limnadæ* inhabit fresh-water; they respire air, and eat vegetable matter.

They differ from the *Helicidæ* in the number and structure of their tentacula, and position of the eyes; as well as in their internal structure, with regard to the position of the sexual organs.

The head is divided from the foot by a strong transverse groove. The mouth is fleshy and retractile; and when withdrawn, the aperture is transverse. The organs of mastication consist of a horny palate, and two small jaws, between which an elastic and transversely grooved tongue is capable of being exserted.

The œsophagus is rather elongated, and is more or less abruptly dilated before it enters the stomach, which is a true gizzard. On each side of the œsophagus are situated the salivary glands, which are composed of many lobes. The gizzard is short in most of the genera. The intestine, after leaving the stomach, receives the biliary ducts by one or two branches, and then continues of an uniform diameter, until it terminates in the anus, which is lateral.

The liver occupies, at least, the last whorl but one of the shell.

The ovarium forms the upper part of the spire, and is more or less enveloped by the upper or posterior extremity of the liver. The oviduct is generally very flexuose, and terminates laterally.

The animal is fixed to its shell by the hinder part of its foot, which is strongly muscular.

The nervous system, although probably essentially similar, is very different at first sight from that of Helicidæ. It consists of a larger central portion (through which, at least in all the turrited genera, passes a very slender muscle from the foot, whose office seems to be that of assisting the retraction of the mouth), and is situated behind the middle of the œsophagus. It receives two nerves from a pair of ganglia, placed anteriorly, and which are either confluent, or distant and connected by a commissure. These two ganglia receive nerves from the parts which surround the mouth, but I have not succeeded in tracing any one of them to its origin. I have counted four nerves on each side most distinctly; but in most cases they coalesce in pairs before they reach the ganglia, as is the case in *Stagnicola*, *Gulnaria* and *Nauta*.

The sexual parts are distant from each other, which enables one individual, at the same time, to perform the function of each sex, with two others, as was first observed by Geoffroy about the middle of the last century.

They all have the power of crawling on the surface of the water, their foot being uppermost, and parallel with the surface of the water. In this point of view, their mode of taking in air for respiration may readily be seen. I have occasionally observed *Gulnaria* and *Nauta* moving an inch below the surface of the water, in an inverse position.

If when creeping at the bottom of the water another species impedes its progress, or creeps against it, the foot of the annoyed animal becomes a fixed point, and the offender is repulsed by repeated blows of its shell, which is whirled round like a club. This is, I believe, their only mode of defence.

The whole system, as well as the shelly covering, is sinistral or reversed, in the genera *Physa*, *Nauta*, *Planorbis*, and *Hemithalamus*; whilst it is regular or dextral in the other genera, *Stagnicola*, *Gulnaria*, and *Myxas*.

The shell is spirally elevated in all the genera but *Planorbis* and *Hemithalamus*, where the whorls are involute, and consequently the shell is depressed.

The last whorl in most of the genera and species of this family, in the old state, is subject to be set with facettes, resembling cut glass. This character has sometimes been used to distinguish species, by cabinet zoologists.

Genus 45. STAGNICOLA.

Lymnæa, *Lamarck*.
Limneus, *Draparnaud*, *Férussac*.
Lymnæus, *Cuvier*.

Testa spirâ valdè, subgradatim, elevatâ, conico-subulatâ. Umbilicus perforatus, clausus. *Tentacula* elongata. *Pallium* non dilatatum.

Shell, with its spire very much and rather gradually elevated, conically-subulate. Umbilicus perforate, but closed. Tentacula elongate. Mantle not dilated.

Synopsis Specierum.

* *Anfractus gradatim crescentes. Apertura brevis.*

1. *octanfracta.* Testâ anfractibus octo convexiusculis, peritremate albido.

** *Anfractus ultimus medium spiræ vix attingens.*

2. *communis.* Testâ anfractibus septem ; ultimo subangulato.
3. *minuta.* Testâ anfractibus septem simplicibus ; suturâ profundâ.

*** *Anfractus ultimus ventricosus. Apertura ultra medium spiræ attingens.*

4. *elegans.* Testâ anfractibus octo elegantissimè elongatis.
5. *vulgaris.* Testâ anfractibus septem mediocribus.

1. STAGNICOLA OCTANFRACTA.

S. testâ anfractibus octo convexiusculis, transversim elevato-striatis ; interstitiis elongato-excavato-punctatis.

Helix octona, *Penn. Brit. Zool.* iv. 138. pl. 86. fig. 135?

Helix octanfracta, *Mont. Test. Brit.* 396. t. 11. fig. 8 ; *M. & R. Trans. Linn. Soc.* viii. 211 ; *Turt. Conch. Dict.* 64.

Limneus elongatus, *Drap. Hist. des Moll.* 53. pl. 3. figs. 3, 4.

Lymnæa octanfracta, *Flem. Edinb. Encycl.* vii. 78.

Bulimus Leucostoma. *Poiret, Prod.* 37.

Habitat in stagnis, rarior.

Shell with eight rather convex, transversely striated whorls ; the striæ elevated ; the interstices with elongately-excavated punctures. Height five-eighths of an inch.

Colour pellucid-horny, generally incrusted with black matter, which is independent of the epidermis.

Inhabits ponds and ditches ; it is rare, or at least very local. It was found by the road-side between Fowey and Looe, by

Montagu; in Suffolk, by the Rev. J. Leiths; and near Wrabness, in Essex, by the Rev. R. Sheppard; both of whom have furnished me with specimens.

Animal blackish; tentacula sometimes pale.

Umbilicus generally closed by the peritreme in adult specimens.

2. Stagnicola communis.

S. testâ anfractibus septem; superioribus transversim undoso-striolatis; ultimo transversim et longitudinaliter elevato-striato, hinc subangulato.

Buccinum palustre, *Müll. Verm. Hist.* 13.

Helix palustris, *Gmel. Syst. Nat.* i. 3658; *Mont. Test. Brit.* 370. t. 16. fig. 10; *M. & R. Trans. Linn. Soc.* viii. 216. t. 5. fig. 8; *Dill. Desc. Cat.* 963; *Turt. Conch. Dict.* 66.

Helix stagnalis, B. *Penn. Brit. Zool.* iv. 139. t. 86. fig. 136. B.

Helix corvus, *Gmel. Syst. Nat.* 3665?

Bulimus palustris, *Brug. Encycl. Méth. Vers,* 302. 13.

Limneus palustris, *Drap. Hist. des Moll.* 52. pl. 3. figs. 1, 2.

Limnæa palustris, *Flem. Edinb. Encycl.* vii. 77.

Limnée des marais, *Cuv. Mém. sur les Moll.* fig. 4.

Animal olivaceo-fuscum aut nigrum, luteo aut flavido-opaco-punctatum. Tentacula cinereo-nigra, diluta.

Habitat in paludibus, vulgaris.

Shell with seven whorls: the upper ones with transverse undulating striæ; the last whorl with transverse and longitudinal elevated striæ, giving it an angulated appearance, like cut glass.

Colour dark-horny, or fuscous. Peritreme whitish, rarely tinted with pale reddish. The inside of the aperture, towards the right and anterior aspects, has sometimes a red or flesh-coloured band.

Animal olive-brown, or sooty-black, spotted with luteous or opake yellowish. Tentacula pale cinereous-black. Height an inch.

Stagnicola communis is generally diffused throughout Great Britain. It inhabits marshes, ponds, and ditches.

3. STAGNICOLA MINUTA.

S. testâ anfractibus septem transversim striatis; suturâ profundâ.

Helix fossaria, *Mont. Test. Brit.* 372; *M. & R. Trans. Linn. Soc.* viii. 217. t. 5. fig. 9; *Dill. Desc. Cat.* 964; *Turt. Conch. Dict.* 66.

Limneus minutus, *Drap. Hist. des Moll.* 53. pl. 3. figs. 5–7.

Lymnæa fossaria, *Flem. Edinb. Encycl.* vii. 77.

Habitat in paludibus, vulgaris.

Shell with seven transversely striated whorls; the suture deep. Height half an inch, generally less.

Colour pale horn, sometimes cinereous.

Animal testaceous, or greyish-black. Mantle dotted with opake yellow. Foot pale.

This species, which was first observed by Montagu, is very common in marshes, ponds, and ditches, especially in such as are not deep. It rarely ascends the aquatic plants, but seems to prefer the mud, on which it is generally found.

4. STAGNICOLA ELEGANS.

S. testâ anfractibus octo, elegantissimè elongatis, transversim striatis.

Helix fragilis, *Mont. Test. Brit.* 368. t. 16. fig. 8; *M. & R. Trans. Linn. Soc.* viii. 215; *Turt. Conch. Dict.* 65.

Lymnæa fragilis, *Flem. Edinb. Encycl.* vii. 77.

Animal luteo-nigricans, flavo opaco-punctatum. Caput et tentacula olivaceo-subtestacea. Pes pallidior.

Habitat in aquis lentè fluentibus.

Shell with eight elegantly-elongated whorls, which are striated transversely. Height two inches. Breadth of aperture one inch. Length of aperture nine-sixteenths of an inch.

Colour pellucid-horny, sometimes inclining to testaceous, and often incrusted with a black deposit.

This species, which is very nearly allied to the following, is confined to slowly flowing waters. It was first discovered by Montagu, who fancied that it might be the *Helix fragilis* of Linné, which, from the description in Fauna Suecica, must most decidedly be a very different shell.

It was found, by Montagu, in a newly made canal, between Chippenham and Laycock, in Wiltshire. I have found it in profusion in the Surrey and Croydon canals; and have received specimens which were taken in the Cam, near Cambridge, by my friend, Dr. F. Granger, who informed me that they were not uncommon in that river.

5. STAGNICOLA VULGARIS.

S. testâ anfractibus septem mediocribus, transversim striatis.

Helix stagnalis, *Linn. Syst. Nat.* xii. i. 1244; *Penn. Brit. Zool.* iv. 138. pl. 86. fig. 136; *Mont. Test. Brit.* 367. tab. 16. fig. 8; *M. & R. Trans. Linn. Soc.* viii. 214; *Dill. Desc. Cat.* 962; *Turt. Conch. Dict.* 65.

Buccinum stagnale, *Müll. Verm. Hist.* 327.

Lymnæa stagnalis, *Lam. Syst. des An. et V.* 91; *Flem. Edinb. Encycl.* vii. 77.

Bulimus stagnalis, *Brug. Encycl. Méth. Vers*, 303. 13, bis.

Limneus stagnalis, *Drap. Hist. des Moll.* 51. pl. 2. figs. 38, 39.

Le Limnée stagnal. *Cuv. Mém. sur les Moll.* fig. 2.

Animal dilutè nigricans, aut rufescente-griseum. Pes pallidè cinereus. Tentacula lutescentia.

Habitat in stagnis et paludibus vulgaris.

Shell, with seven moderately developed whorls, which are transversely striated. Height two inches. Breadth of aperture one inch. Length of aperture five-eighths of an inch.

Colour of the shell similar to that of *S. elegans* in all respects. The last whorl, in old specimens, is somewhat angulated, as in *S. communis*.

This species is abundant in most of the pools and marshes around London. It is likewise not uncommon in Wiltshire. In all stages of growth it may be distinguished from *S. elegans*. It is found in all the ditches bordering on the Surrey and Croydon canals, where *S. elegans* is found in great plenty; but they are never found together.

Genus 46. GULNARIA.

Testa spirâ brevissimâ, abruptè formatâ, ad apicem acuminatâ. *Umbilicus* perforatus, apertus. *Tentacula* latissima. *Pallium* non dilatatum.

Shell, with its spire very short, abruptly formed, acuminated at its point, or apex. Umbilicus perforate, and open. Tentacula very broad. Mantle not dilated.

1. GULNARIA PEREGRA. Pl. II. figs. 4, 5.

G. testâ subampullaceâ, corneâ; aperturâ subovatâ.
Buccinum peregrum, *Müll. Hist. Verm.* 130.
Bulimus pereger, *Brug. Encycl. Méth. Vers,* vi. 301.
Helix peregra, *Gmel. Syst. Nat.* 3659; *Mont. Test. Brit.* 373. t. 16. fig. 3.
Helix putris, *Penn. Brit. Zool.* iv. 139. t. 86. fig. 137; *M. & R. Trans. Linn. Soc.* viii. 219; *Dill. Desc. Cat.* 965.
Lymnæa putris, *Flem. Edinb. Encycl.* vii. 77.
Helix lutea, *Mont. Test. Brit.* 380. t. 16. fig. 6; *Dill. Desc. Cat.* 969.
Lymnæa lutea, *Flem. Edinb. Encycl.* vii. 77.
Helix limosa, *Mont. Test. Brit.* 381. t. 16. fig. 1.
Limneus pereger, *Drap. Hist. des Moll.* 50.
Limneus ovatus, *Drap. Hist. des Moll.* 50.
Helix auricularia, β., *M. & R. Trans. Linn. Soc.* viii. 221.
Animal olivaceum, olivaceo-testaceum vel citrinum, supernè albido aut opaco-flavido punctatum. Oculi atri. Tentacula sæpius pallidiora. Pallium atrum griseo-marmoratum.
Habitat in paludibus, stagnis, fluviis lentè fluentibus lacubusque, vulgaris.

Shell somewhat ampullaceous, horny; the aperture rather ovate. Longitudinal diameter of the aperture seven-eighths of an inch; breadth half an inch.

Animal olivaceous, sometimes inclining to testaceous, or entirely lemon-coloured; upper part of head, neck, back, and sides punctured with opake white or yellowish dots. Spiral part of the animal black, marbled, or varied with grey. Tentacula generally of a paler hue than the head. Eyes black.

Whorls faintly striated transversely. Epidermis sometimes brownish.

Gulnaria peregra is extremely common in every part of Great Britain, inhabiting slowly running waters, lakes, ponds, and marshes. It varies much in size: this has induced Montagu and Draparnaud to divide it into three supposed species, which gradually pass into each other.

2. Gulnaria lacustris.

G. testâ ampullaceâ, corneâ ; anfractibus transversim latè-sulcatis ; spirâ depressiusculâ ; aperturâ subovali.

Habitat in Angliæ Borealis lacubus, vulgaris.

Shell ampullaceous, horny ; whorls with broad transverse regular grooves ; spire depressed ; aperture nearly oval.

For this species I am indebted to General Bingham, who observed it in all the lakes of Westmoreland and Cumberland in tolerable plenty. The regularity of the grooves at once distinguish this from any other species. The shell is rather thick, especially at the apex of the spire, where it is generally decorticated and eroded.

3. Gulnaria auricularia.

G. testâ ampullaceâ, corneâ ; aperturâ amplissimâ, subpatulâ.

Helix auricularia, *Linn. Syst. Nat.* 1250 ; *Mont. Test. Brit.* 375. t. 16. fig. 2 ; *Penn. Brit. Zool.* iv. 139. t. 86. fig. 138 ; *M. & R. Trans. Linn. Soc.* viii. 221. var. *a.* ; *Dill. Desc. Cat.* 969 ; *Turt. Conch. Dict.* 68.

Buccinum Auricula, *Müll. Hist. Verm.* 322.

Limneus auricularius, *Drap. Hist. des Moll.* 49. pl. 2. figs. 28, 29 ; *Féruss. Essai Conch.* 56.

Lymnæa auricularia, *Flem. Edinb. Encycl.* vii. 77.

Animal testaceum, fulvescens aut griseum albo opaco punctatum. Tentacula dilutiora. Pallium atrum griseo pulcherrimè maculatum et marmoratum.

Habitat in aquis lentè fluentibus.

Shell ampullaceous, horny ; the aperture very large, and rather spreading. Longitudinal diameter of the aperture one inch ; breadth five-eighths.

Whorls transversely striated. Spiral part of the animal, when viewed through its horn-coloured shell, is dusky-black, spotted, and marbled with golden yellow ; the same part, when the shell is removed, is pure black, marbled, and spotted with grey. Head, neck, sides, and upper part of the foot, testaceous, pale-orange, or grey, punctured with opake white. The tentacula paler than the body.

This species is very local. It occurs in the New River, near London ; in ditches around Eton ; in the river at Oxford ; in the Avon, in Wiltshire ; and in the Kennet, in Berkshire.

I believe that Dr. Fleming informed me, some years since, that he had met with this species in Scotland ; but this is rendered a little doubtful from his statement in the Edinburgh Encyclopædia, which seems to arise from an error in the punctuation.

Genus 47. MYXAS.

Testa spirâ brevissimâ, depressiusculâ. *Peritrema* 0. *Umbilicus* 0. *Tentacula* latissima. *Pallium* utrinque in membranam dilatatum testam modo non tegens.

Shell with a very short and rather depressed spire. Peritreme none. Umbilicus none. Tentacula very broad. Sides of the mantle dilated into a membrane, which almost entirely covers the shell.

1. MYXAS MÜLLERI.

M. testâ ventricosâ, corneâ, pellucidâ, nitidâ; anfractibus transversim striatis.

Helix fragilis, *Linn. Fn. Sv.* 2187.

Buccinum glutinosum, *Müll. Verm. Hist.* 323.

Helix glutinosa, *Gmel. Syst. Nat.* 3659 ; *Mont. Test. Brit.* 379. t. 16. fig. 5 ; *M. & R. Trans. Linn. Soc.* viii. 222 ; *Dill. Conch. Dict.* 970 ; *Turt. Conch. Dict.* 69.

Bulimus glutinosus, *Brug. Encycl. Méth. Vers*, 306.

Limneus glutinosus, *Drap. Hist. des Moll.* 50.

Habitat in paludibus, rarior.

Shell ventricose, horny, pellucid, glossy ; the whorls striated transversely.

"Animal dirty-yellow, or testaceous; mantle spotted with yellow or sulphur-colour."—*Cranch.*

This species is very rare, or at least very local in Britain. It is said to be not uncommon in the marshes around Deal. Montagu found it in a water-course, near Reading, in Berkshire; in a ditch, near Dunster Castle, in Somerset; it has likewise been taken in a pond near Windermere, by the Rev. J. Bulwer.

It secretes, in common with its congeners, a vast quantity of thick mucus; I have therefore rejected the specific appellation *glutinosa*, which is expressed in its generic name, and have substituted that of the celebrated Müller, who first discovered it.

Genus 48. PHYSA.

Physa, *Draparnaud, Férussac, Cuvier.*

Testâ ovatâ; spirâ subabruptè elevatâ, ad apicem obtusiusculâ. *Umbilicus* nullus. *Pallium* lateraliter in membranam multifidam dilatatum, anfractûs ultimi latera, et spiram tegens. *Tentacula* setacea.

Shell ovate, the spire rather abruptly elevated, its apex somewhat obtuse. Umbilicus none. Mantle dilated laterally into a many-parted membrane, which is reflected over the sides and dorsal aspect of the last whorl. Tentacula setaceous.

1. PHYSA FONTINALIS.

P. testâ diaphanâ; corneâ, nitidâ; anfractibus tenuiter transversim striolatis.

Bulla fontinalis, *Linn. Syst. Nat.* xii. i. 1185; *Mont. Test. Brit.* i. 226; *M. & R. Trans. Linn. Soc.* viii. 126; *Flem. Edinb. Encycl.* vii. 85; *Dill. Desc. Cat.* 487; *Turt. Conch. Dict.* 26.

Planorbis Bulla, *Müll. Verm. Hist.* 353.

Bulimus fontinalis, *Brug. Encycl. Méth. Vers,* 306, 17.

Physa fontinalis, *Drap. Hist. des Moll.* 54. pl. 3. figs. 8, 9.

Animal testaceum, olivaceo-punctulatum et irroratum. Tentacula et margines pedis testacea, sæpius immaculata. Pes elongatus, acuminatus. Oculi aterrimi.

Habitat in fontibus et in aquis lentè fluentibus.

Shell diaphanous, horny, glossy; the whorls very finely striated transversely. Animal testaceous, freckled, and varied with olive-green. Tentacula and the margins of the foot testaceous, and most frequently without dots. Foot elongate and acuminate. Eyes very black. The reflected portion of the mantle often tinted with olivaceous. Height half an inch: breadth of aperture three-eighths.

P. fontinalis is extremely common, and is generally diffused over every part of Britain. It occurs in fountains, and slowly flowing waters; and is very rarely found in stagnant pools.

The movement of the animal in the water is slow. When at rest, it frequently settles on aquatic plants, near enough to the surface to be enabled to respire at will; and when it is annoyed by the approach of wandering animals, it repulses them, with repeated blows, inflicted by a rapid movement of the shell; the foot being the point of fixture.

The last whorl of the shell, when the animal is in it, is elegantly reticulated with blackish olive, caused by the colouring of the mantle, which is visible through its pellucid shell.

Genus 49. NAUTA.

Testa altè acuminato-turrita; spirâ ad apicem obtusiusculâ. *Umbilicus* nullus. *Pallium* non dilatatum. *Tentacula* setacea, ad basin internè dilatata, oculigera.

Shell highly acuminately-turrited; the apex of the spire rather obtuse. No umbilicus.

Mantle not dilated. Tentacula setaceous.

1. NAUTA HYPNORUM.

N. testâ ovato-oblongâ, diaphanâ, corneâ, politâ, nitidâ; anfractibus tenuissimè transversim striolatis.

Bulimus Hypnorum, *Brug. Encycl. Méth. Vers,* 301, 11.

Planorbis turritus, *Müll. Verm. Hist.* 354.

Bulla Hypnorum, *Mont. Test. Brit.* 228; *M. & R. Trans. Linn. Soc.* viii. 127; *Dill. Desc. Cat.* 488; *Turt. Conch. Dict.* 26.

Physa Hypnorum, *Drap. Hist. des Moll.* 55. pl. 3. figs. 12, 13.

Bulla rivalis, *Flem. Edinb. Encycl.* vii. 85.

Animal cærulescente-atrum. Oculi aterrimi. Tentacula ad apicem albida. Pes elongatus, acuminatus.

Habitat in paludibus, et in aquis lentè fluentibus.

Shell ovately-oblong, diaphanous, horny, polished, and shining; the whorls most delicately striolated transversely. Height eleven-sixteenths of an inch: breadth of aperture five-sixteenths.

Animal bluish-black. Eyes very black. Extremities of the tentacula whitish. Foot elongate and acuminate.

It is found in a marsh, near the Ware-head, on the Exe, near Exeter; near Lackham, in Wilts; in Battersea fields; in Loch Dedinstone, near Edinburgh; and in the river, near Oxford.

Genus 50. PLANORBIS.

Planorbis, *Müller, Draparnaud, Férussac, Curier.*

Testa sinistrorsum involuto-spiralis, uni-camerata. Peritrema posticè fortiter inchoatum. *Tentacula* setacea.

Synopsis Specierum.

A. Anfractus pauci.

* Spira immersa, infundibuliformis. Umbilicus clausus, planus.

1. *corneus.* Testâ corneâ, crassiusculâ; anfractibus transversim antiquato-striatis.

** Spira ad apicem immersa. Umbilicus concavus.

2. *albus.* Testâ griseo-corneâ, tenui; anfractibus longitudinaliter elevato-lineatis.
3. *carinatus.* Testâ corneâ, pellucidâ; anfractibus transversim striatis, ad dorsi medium carinatis.
4. *marginatus.* Testâ corneâ, fuscâ, subpellucidâ, ad sinistram planiore; anfractibus transversim striolatis, ad sinistram dorsi carinatis.

5. *Sheppardi.* Testâ nitidâ, diaphanâ, ad sinistram planiusculâ ; anfractibus transversim striolatis, ad sinistram dorsi fortiter carinatis.

*** Spira ad apicem subconcava. Umbilicus infundibuliformis.

6. *imbricatus.* Testâ ad dextram planiusculâ ; anfractuum epidermide transversim-elevatâ, carinâ obsoletâ, tuberculatâ.

B. Anfractus plurimi.

* Spira plana, ad apicem abruptè immersa. Umbilicus infundibuliformis.

7. *contortus.* Testâ tenui, suturâ fortiore.

** Spira gradatim concava, ad apicem subimmersa. Umbilicus ferè planus, ad medium subconcavus.

8. *vortex.* Anfractibus sensim crescentibus, ad sinistram planioribus, carinatis.
9. *spirorbis.* Anfractibus ad sinistram planioribus : ultimo abruptè majore ; carinâ dorsali, mediâ.

All the Planorbes have their shell involutely and sinistrorsly spiral ; the cavity simple ; the peritreme strongly commenced behind.

Tentacula setaceous.

1. PLANORBIS CORNEUS.

P. testâ corneâ, crassiusculâ ; anfractibus transversim antiquato-striatis.

Helix cornea, *Linn. Syst. Nat.* i. 1143 ; *Penn. Brit. Zool.* iv. 134. pl. 83. fig. 126 ; *Mont. Test. Brit.* ii. 448 ; *M. & R. Trans. Linn. Soc.* viii. 191 ; *Dill. Desc. Cat.* 906.

Planorbis corneus, *Drap. Hist. des Moll.* 43. pl. 1. fig. 42–44 ; *Flem. Edinb. Encycl.* vii. 69 ; *Cuv. Mém. sur les Moll.* fig. 12.

Animal intensè olivaceo-brunneum ; tentacula ad basin externè dilatata, ad apicem gradatim pallidiora.

Habitat in paludibus.

Shell horny, rather thick; the whorls transversely striated; the striæ antiquated. Diameter one inch and a quarter.

Animal of an intense olive-brown; tentacula dilated at their base externally, gradually paler in colour towards their extremities.

Colour of the shell brown, fuscous, or reddish-horn; often whitish beneath. Spire composed of six whorls; the two first very small; the last very large. Three spires only are visible from above.

Planorbis corneus is the largest of the European species. It is common in the marshes round London and Oxford; and has been found by Montagu, near Wareham, in Dorsetshire. It is abundant likewise in ditches, near Eton and Cambridge.

The animal, when teased, emits from its mantle a blood-red secretion, similar to that of the Aplysia in appearance.

2. Planorbis albus.

P. testâ griseo-corneâ, aut albidâ tenui; anfractibus longitudinaliter elevato-lineatis.

Planorbis albus, *Müll. Verm. Hist.* 164?; *Flem. Edinb. Encycl.* vii. 69.

Helix alba, *Mont. Test. Brit.* 459; *M. & R. Trans. Linn. Soc.* 192; *Dill. Desc. Cat.* 909.

Planorbis spirorbis, *Drap. Hist. des Moll.* pl. 2. figs. 8–10.

Animal pallidè cinereum. Tentacula sæpè dilutiora. Oculi atri.

Habitat in stagnis, frequens.

Shell grey horn-coloured or whitish, thin; the whorls with longitudinally elevated lines. Diameter five-sixteenths of an inch.

Animal pale ash-coloured. Tentacula often paler. Eyes black.

Shell thin, somewhat pellucid. Epidermis pale-brown, often fuscous. Whorls four; all visible from above and below; with elevated, distant, transverse striæ crossing the longitudinal lines, and producing a reticulated appearance.

This species is common in ponds and ditches. It occurs round London and Eton; near Lackham, in Wiltshire; and about Bristol and Bath.

3. Planorbis carinatus.

P. testâ corneâ, pellucidâ; anfractibus transversim striatis, ad medium dorsi carinatis.

Planorbis carinatus, *Müll. Verm. Hist.* 157, 344; *Drap. Hist. des Moll.* 46. pl. 2. figs. 13, 14, 16; *Flem. Edinb. Encycl.* vii. 69.

Helix carinata, *Mont. Test. Brit.* 450. t. 25. fig. 1.

Helix planata, *M. & R. Trans. Linn. Soc.* viii. 189.

Helix planorbis, *Turt. Conch. Dict.* 45.

Animal olivaceum. Tentacula et margines pedis crocei vel testacei. Oculi nigri.

Habitat in stagnis, paludibus, et in aquis lentè fluentibus.

Shell horny, pellucid; the whorls transversely striated, carinated in the middle of their dorsal aspect. Diameter five-eighths of an inch.

Animal olivaceous. Tentacula and margins of the foot saffron or testaceous. Eyes sooty-black.

The left side of the whorls is decidedly less convex than the right side. It may always be recognized by the appearance of the keel, when viewed in front of the aperture.

Inhabits ditches, ponds, and slowly flowing waters. It is common around London and Cambridge. It occurs likewise in ditches, round Wareham, in Dorsetshire, and Eton; and to the east of Edinburgh, in similar situations.

4. Planorbis marginatus. Pl. II. figs. 7, 8.

P. testâ, corneâ, fuscâ, subpellucidâ, ad sinistram planiore; anfractibus transversim striolatis, ad sinistram dorsi carinatis.

Helix Planorbis, *Linn. Syst. Nat.* i. 1242; *Penn. Brit. Zool.* iv. 133; *M. & R. Trans. Linn. Soc.* viii. 188. t. 5. fig. 13.

Planorbis umbilicatus, *Müll. Verm. Hist.* 349, 160.

Helix complanata, *Mont. Test. Brit.* 450; *Dill. Desc. Cat.* 897; *Turt. Conch. Dict.* 46.

Planorbis marginatus, *Drap. Hist. des Moll.* 45. pl. 2. figs. 11, 12, 15.
Planorbis complanatus, *Flem. Edinb. Encycl.* vii. 69.
Animal olivaceo-nigrum. Tentacula lateraliter et ad basin rufa aut rufo-citrina. Oculi atri.
Habitat in stagnis et paludibus vulgatissima.

Shell horny, fuscous, slightly pellucid, distinctly flatter on the left side; the whorls transversely striated, the left side of the dorsal aspect of the whorls carinated. Diameter six-eighths of an inch; sometimes greater.

Animal olive-black. Tentacula with their sides and their base rufous, or reddish orange-coloured. Eyes black.

This very common species is found in all parts of Britain, inhabiting ditches and ponds.

5. PLANORBIS SHEPPARDI.

P. testâ nitidâ, diaphanâ, ad sinistram planiusculâ; anfractibus transversim striolatis, ad sinistram dorsi carinatis.
Helix complanata, *Linn. Syst. Nat.* 1242; *Fn. Sv.* 2177.
Habitat in fluvio *Ore* dicto, in provinciâ Soffolciensi.

Shell glossy, diaphanous, its left side nearly flat. Whorls very finely striolated transversely; the left side of their dorsal aspect carinated.

I am indebted to the Rev. Revett Sheppard for this elegant species of *Planorbis*, which he found in the river Ore, in Suffolk, and communicated to me as the true *Helix complanata* of Linné; and it agrees so well with the character given in Fauna Suecica, as to leave no doubt on my mind.

The longitudinal diameter of the specimens received from Mr. Sheppard does not exceed a quarter of an inch; but Mr. Sheppard informs me, that he has larger ones in his own cabinet, from near Blaxhall, in the same county.

6. PLANORBIS IMBRICATUS.

P. testâ ad dextram planiusculâ; anfractuum epidermide transversim elevatâ, carinâ obsoletâ, tuberculatâ.
Planorbis imbricatus, *Müll. Verm. Hist.* 165; *Drap. Hist. des Moll.* 44, pl. 1. figs. 49, 50, 51?

Helix nautilea, *Mont. Test. Brit.* 464. pl. 25. fig. 5, fig. mala.

Turbo nautileus, *M. & R. Trans. Linn. Soc.* viii. 169; *Turt. Conch. Dict.* 227; *Dill. Desc. Cat.* 882.

Planorbis cristatus, *Drap. Hist. Nat. des Moll.* 44. pl. 2. figs. 1, 2, 3.

Planorbis nautileus, *Flem. Edinb. Encycl.* vii. 69.

Animal cinereum aut griseum. Tentacula hyalina. Oculi atri. Habitat in paludibus, stagnis.

Shell with its left side rather flat; the epidermis of the whorls transversely elevated; the keel obsolete and tuberculated. Diameter one-eighth of an inch.

Animal ash-coloured or grey. Tentacula hyaline. Eyes black.

Planorbis imbricatus was first noticed by Müller. The epidermis is subject to very great variation, with regard to the degree in which it is elevated. The specific character is taken from the most common appearance. In some situations it may be found with a smooth epidermis, with every intermediate state, necessary to prove its identity with the one above described. The dorsal ridge is sometimes furnished with spine-like processes of epidermis.

It seems to be rather a local species. It is found in Battersea fields; in a pond, near Tenby; in ditches, near Sandwich; near Wedhampton, in Wiltshire; round Kingsbridge and Exeter, in Devon; and in a pond near Cobham, in Surrey. I found it in a marsh, near Dunloch Gap; and again at Muccross, near Killarney.

The preceding pages have been reprinted from a copy in Mr. Baldwin's possession, the work having proceeded so far in 1820 under Dr. Leach's revision. The manuscript, containing the remaining species of *Planorbis,* and the six succeeding genera, which was probably at the printers when the work was stopped, cannot now be recovered.

FAMILY I. PURPURADÆ.

Buccinoïdes, *Cuvier*.
Trachiales zoophages, *Lamarck*.

Testa elevato- (rariùs involuto-) spiralis. *Apertura* ad sinistram (nisi in heterostrophis) in canalem simplicem aut tectum producta, siphonem efformans. *Operculum* corneum. *Pallium* anticè ad sinistram, in siphonem respiratorium (testa siphonem implens) productum. *Os* in rostellum flexile, teres, refractile, è tunicis duabus effectum, productum. *Tunica exterior* ad apicem sæpiùs fissa ; *interior* ad apicem labiis duobus, sæpiùs spinosis, instructa. *Lingua* spinulosa.

Synopsis Stirpium et Generum.

* *Testa subinvoluto-spiralis.*

Stirps 1. Apertura ad sinistram subproducta, sæpiùs plicata.
Apertura ad dextram gradatim angustata.
Umbilicus perforatus .... 57. Actæon.

** *Testa elevato-spiralis.*

Stirps 2. Apertura ad sinistram in siphonem clausum producta.
Peritrema (nisi ad siphonis productionem) perfectum, anticè fimbriatum. Umbilicus obtusè impresso-perforatus........ 58. Ocinebra.

Stirps 3. Apertura ad sinistram in siphonem apertum producta.

a. Testæ siphon brevissimus. Peritrema posticè planiusculum.

Apertura ad dextram et ad sinistram acuminata. Siphon recurvus	59. Purpura.
Apertura ad dextram acuminata, posticè sinuata. Siphon ad sinistram curvatus.	60. Hima.

b. Testæ siphon mediocris aut longissimus. Peritrema posticè conforme.

Siphon mediocris, recurvus, ad apicem. Peritremate tectus.	61. Buccinum.
Siphon elongatus aut longissimus, rectus, ad apicem. Peritremate nullo tectus	62. Fusus.

c. Testæ siphon brevis. Peritrema posticè conforme.

Apertura ad dextram emarginata	63. Mangelia.
Apertura ad dextram perfecta	64. Bela.

*** *Testa altè turrita.*

Stirps 4. Apertura anticè in alam lobatam dilatata, ad sinistram canaliculata.

Testa altè et acutè elevata; anfractu ultimo in alam digitatam dilatato	65. Apporhais.

Stirps 5. Apertura, anticè in siphonem brevem recurvum producta, anticè simplex.

Testa conicè et altè elevata; apertura ad sinistram paulò volutata et deflexa	66. Cerithium.

The shell elevatedly spiral, rarely involuted. The aperture on the left side, (except in the heterostrophe or reversed shells), is produced into a simple or covered canal, forming a siphon. The operculum is horny. The mantle on the left side anteriorly is produced into a respiratory siphon, which fills the siphon of the shell. The mouth is produced into a flexible, rounded, retractile rostrum or beak, which is formed of two integuments.

The exterior integument is most generally slit at its extremity; the interior integument is furnished at its extremity with two lips which are most generally armed with spines. Tongue is spinulose.

STIRPS I.

Genus 57. ACTÆON.

Actæon, *De Montford, Cuvier.*
Tornitelle, *Lamarck.*

Testa elliptica, conico-spiralis. *Apertura* ad dextram gradatim angustata; ad sinistram uniplicata. *Peritrema* posticè inchoatum. *Umbilicus* perforatus.

Shell elliptical, conically spiral. Aperture gradually narrowed to the right, with one fold on the left. Peritreme commenced behind. Umbilicus perforate.

Of this genus I have seen contracted specimens of the animal, preserved in spirits; by which I have been enabled merely to ascertain that it belongs to this order of Gasteropoda, and not to the Saccobranchia, to which it was referred by my learned friend, the Baron Cuvier, who had never seen the inhabitant.

Through the medium of the exotic genera, *Oliva, Voluta, Cancellaria,* &c. it is connected with *Buccinum, Murex, &c.* and belongs evidently to the family *Purpuradæ.*

1. ACTÆON TORNATILIS.

A. testâ rosaceâ, anfractibus longitudinaliter sulculatis, vittis 2 albis notatis: superioribus abruptè angustatis, planis.

Voluta tornatilis, *Linn. Syst. Nat.* i. 1187; *Penn. Brit. Zool.* iv. 117. t. 71. fig. 86; *Gmel. Syst. Nat.* i. 3437; *Mont. Test. Brit.* i. 231; *M. & R. Trans. Linn. Soc.* viii. 189; *Flem. Edinb. Encycl.* vii. 83; *Dill. Desc. Cat.* 503; *Turt. Conch. Dict.* 249.

Voluta bifasciata, *Gmel. Syst. Nat.* i. 3436.

Acteon tornatilis, *De Mont. Conch. Syst.* ii. 315; *Cuv. Règne Anim.* ii. 414.

Habitat in littoribus arenosis, et in mari profundo, frequens.

Shell inclining to rosy; the whorls longitudinally sulcated finely, and marked with two white bands; the superior whorls abruptly narrowed and flat. Height 1 and $\frac{1}{4}$ inch.

This species is not uncommonly found on the sandy parts of the south-western coasts of Devon and Cornwall, and on the shores of South Wales and Ireland, at low tide; as well as by dredging in deep water, on a sandy bottom.

Gmelin, with his usual carelessness, has, on opposite pages of his work, described this species under two names, referring in both instances to the same figures in Martini, vol. ii. pl. 43. figs. 442, 443.

STIRPS II.

The genera composing this Stirps inhabits the mouths of rivers, as well as the deep sea. We have but one genus on the British coasts, which, with the other genera of the Stirps, has a closed siphon.

Genus 58. Ocinebra.

Testa acutè elevato-spiralis: anfractus sæpius transversim elevato-costati; costæ incrassatæ. *Peritrema* (nisi ad siphonis productionem) perfectum, anticè fimbriatum. *Umbilicus* obtusè impresso-perforatus. *Os* brevissimum, rostriforme. *Tentacula* elongata, acuminato-conica, ad apices subobtusiuscula, ultra medium externè dilatata, oculigera. *Oculi* minutissimi, globulosi. *Pes* ultra os productus. *Sipho respiratorius* brevis.

Shell with an acutely elevated spire; the whorls generally bearing thickened, elevated ribs. The peritreme (excepting at the production of the siphon) perfect, anteriorly fringed. The umbilicus obtusely impressedly-perforate.

Mouth very short, rostriform. Tentacula elongate, acuminately conic; their extremities rather inclining to be obtuse; their external aspects, beyond their middle, dilated, bearing their eyes, which are very minute and globulose. Foot produced beyond the mouth. Respiratory siphon very short.

The siphon of the shell is open, in the young state, of all the species of this genus.

1. Ocinebra Erinacea.

O. anfractibus longitudinaliter lineato-elevatis; lineis alternatim minoribus, crenato-lamellatis.

Murex Erinaceus, *Linn. Syst. Nat.* i. 1216; *Penn. Brit. Zool.* iv. 123. t. 76. fig. 95; *Mont. Test. Brit.* i. 259; *M. & R. Trans. Linn. Soc.* viii. 142; *Flem. Edinb. Encycl.* vii. 71; *Dill. Desc. Cat.* 690; *Turt. Conch. Dict.* 87.

Buccinum porcatum, *Da Costa,* 133. t. 8. fig. 7.

Animal viridescente-griseum, aurantium aut aurantio-flavum, opaco-albo varium, maculatum aut punctatum. Tentacula pallidè rufescentia, albido-opaco varia, ad basin dilutiora. Oculi atri.

Habitat in mari Britannico, præsertim in scopulosis, vulgaris.

Whorls with longitudinally elevated lines; the lines alternately smaller, with wrinkled lamellæ. Height two inches.

This very common species occurs on most of our rocky coasts, and in a young state is more frequently taken by dredging in deep water.

Colour of the shell dirty-white or pale-brown. When worn, they are often mottled with rusty-brown, croceous, and white.

Animal greenish-grey, orange or orange-yellow, varied, spotted, or freckled with opake-white. Tentacula pale-reddish, varied with opake-whitish, their bases paler. The eyes pure black.

STIRPS III.

The shells of the genera, which compose this Stirps, have a more or less elevated spire, which is never turrited. The left side of the aperture is produced into an open siphon, very variable in length. Umbilicus closed.

Synopsis Generum.

* *Testæ Siphon brevissimus. Peritrema posticè planiusculum.*

Apertura ad dextram et ad sinistram acuminata. Siphon recurvus	59. PURPURA.
Apertura ad dextram acuminata, posticè sinuata. Siphon ad sinistram curvatus . .	60. HIMA.

** *Testæ Siphon mediocris aut longissimus. Peritrema posticè conforme.*

Siphon mediocris, recurvus, ad apicem peritremate tectus	61. BUCCINUM.
Siphon elongatus aut longissimus, rectus, ad apicem peritremate nullo instructus	62. FUSUS.

*** *Testæ Siphon brevis. Peritrema posticè conforme.*

Apertura ad dextram emarginata	63. MANGELIA.
Apertura ad dextram perfecta	64. BELA.

Genus 59. PURPURA.

Purpura, *Bruguière*, *Cuvier*.

Testa subovata, acutè spiralis. *Apertura* ad dextram et ad sinistram acuminata. *Siphon* brevissimus, recurvus. *Peritrema* anticè internè marginatum, crenulatum, posticè fortiter inchoatum, planiusculum. *Tentacula* ultra medium externè dilatata, oculigera. *Oculi* plano-convexi.

Shell rather ovate, acutely spiral. Aperture acuminated on the right and left side. Siphon very short and recurved. Peritreme anteriorly internally margined and wrinkled; behind strongly commenced, and flattish. Tentacula dilated externally beyond their middle; the dilated portion bearing the eyes, which are plano-convex.

1. PURPURA LAPILLUS.

P. anfractibus mediocriter convexis, longitudinaliter elevato-

lineatis, et transversim antiquato-lineolatis (in junioribus saltem elevato-lamellatis ; lamellis curvatis aut echinatis).

Buccinum Lapillus, *Linn. Syst. Nat.* i. 1202 ; *Penn. Brit. Zool.* iv. 118. t. 72. fig. 89 ; *Mont. Test. Brit.* 239 ; *M. & R. Trans. Linn. Soc.* viii. 135 ; *Flem. Edinb. Encycl.* vii. 70 ; *Donov. Brit. Shells,* t. 11 ; *Dill. Desc. Cat.* 613; *Turt. Conch. Dict.* 14.

Tritonium Lapillus, *Müll. Zool. Dan. Prodr.* 244.

Purpura Lapillus, *Cuv. Règne Anim.* ii. 436.

Animal albidum, immaculatum. Oculi aterrimi.

Habitat in littore scopuloso, vulgaris.

Shell with moderately convex whorls, which are elevated into longitudinal lines, and are transversely lineolated with little antiquated lines, which in the young shells are elevated into curved or spinous lamellæ. Height 2 to 2$\frac{2}{8}$ inches. Breadth 1 inch.

The animal is whitish, without spots. The eyes are very black.

All the rocky coasts of Britain produce this species in very great abundance. It is subject to great variety of form, as well as of colour ; it is white, luteous, croceous, brown or purple, plain, or banded with one or more of those colours. In much exposed situations its apex is much depressed ; and in very sheltered bays the adult shell has all those elevated lamellæ which it always has in its youthful state.

Genus 60. Hima.

Testa ovato-oblonga, acutè spiralis. *Apertura* ad dextram acuminata, posticè sinuata. *Siphon* brevissimus, ad sinistram curvatus. *Peritrema* anticè internè incrassatum, crenatum, aut tuberculatum ; posticè fortissimè inchoatum, planiusculum. *Tentacula* acuminato-conica, paulo ultra medium externè dilatata, oculigera. *Oculi* vix rotundati. *Siphon respiratorius* elongatus, gradatim acuminatus, ad apicem obtusiusculus. *Os* rostriforme, ultra pedem productum. *Pes* utrinque gradatim attenuato-dilatatus.

Synopsis Specierum.

* *Anfractibus longitudinaliter sulcatis, transversim costatis. Peritremate posticè patulo.*

1. *minuta.* Peritremate externè anticè tumido, siphone maculâ apicali nigrâ.
2. *reticulata.* Peritremate externè anticè simplici, anfractu ultimo undulato-costato.

** *Anfractibus lævigatis. Peritremate posticè recto.*

3. *lævigata.* Anfractibus planiusculis; ultimo ad dextram longitudinaliter bisulcato.

Shell ovately-oblong; the spire acute. Right side of the aperture acuminated, hinder side sinuated. Siphon very short, curved to the left. Peritreme anteriorly, internally thickened, wrinkled, or tuberculated; behind strongly commenced, and flattish.

Tentacules acuminately-conic, dilated a little beyond their middle, and bearing the eyes, which are scarcely round. The siphon elongate, gradually acuminated; its apex rather obtuse. Mouth rostrated; produced beyond the foot. Foot gradually attenuated.

1. HIMA MINUTA.

H. peritremate anticè, externè tumido; siphone maculâ apicali nigrâ.

Buccinum minutum, *Penn. Brit. Zool.* iv. 122. t. 79. Fig. med. infer. sinistra.

Buccinum macula, *Mont. Test. Brit.* 241. t. 8. fig. 4; *M. & R. Trans. Linn. Soc.* viii. 138. t. 4. fig. 4; *Flem. Edinb. Encycl.* vii. 70; *Dill. Desc. Cat.* 638; *Turt. Conch. Dict.* 15.

Animal pallidè flavidum, nigricante-purpureo punctatum.

Habitat in mari profundo, vulgatissima.

Peritreme anteriorly, externally tumid; siphon with a black spot at its extremity. Height five-eighths of an inch.

Colour extremely variable; brown, reddish-brown, purple, violet or white, with every kind of intermediate colours, produced by the admixture of those enumerated.

Common off most of our coasts in the deep water; is sometimes found alive on the rocks, and abundantly thrown on the sandy shores in a dead state.

2. HIMA RETICULATA.

H. peritremate externè anticè simplici, anfractu ultimo costis undulosis.

Buccinum reticulatum, *Linn. Syst. Nat.* i. 1204; *Penn. Brit. Zool.* iv. 118. t. 72. fig. 92; *Mont. Test. Brit.* 240; *M. & R. Trans. Linn. Soc.* viii. 137; *Flem. Edinb. Encycl.* vii. 70; *Dill. Desc. Cat.* 637; *Donov. Brit. Shells,* t. 76; *Turt. Conch. Dict.* 14.

Nassa reticulata, *Cuv. Règne Anim.* ii. 436.

Animal flavidum, pallidè aurantium, aut virescente-tinctum, opaco-albo punctatum et nigricante variegatum aut maculatum. *Oculi* atri. *Tentacula* supernè nigro-maculata, aut punctulata.

Habitat in littore scopuloso; et in profundiore mari, vulgatissima.

Peritreme externally, anteriorly simple; the last whorl of the shell with undulating ribs. Height an inch and a half.

Animal yellowish, palely tinctured with orange or greenish, punctured with opake-white; spotted and variegated with blackish, or variegated with those colours.

One of the most common of our shells. It is found on the rocky shores, or in the deep sea.

3. HIMA LÆVIGATA. Pl. X. fig. 1.

H. anfractibus planiusculis, ultimo ad dextram longitudinaliter bisulcato.

Habitat in Danmoniæ mari profundo, semel obvia.

Whorls rather flattened; the right aspect of the last whorl with two slight grooves. Height one inch.

Colour of the shell white; covered by a dirty nut-brown epidermis, tinged with luteous. When viewed through a lens, the surface is transversely and distantly striolated.

It is to my friend, Charles Prideaux, Esq. that I am indebted for the knowledge of this highly interesting species, which he obtained from the deep water off the Plymouth Sound, and kindly transmitted to me for my collection.

Genus 61. BUCCINUM.

Buccinum, *Lamarck*.

Testa acutè elevato-spiralis, ad apicem mamillata. *Siphon* mediocris, recurvus, usque ad apicem peritremate tectus. *Tentacula* depressa, triangulata, mediocria, ad basin externè abruptè dilatata, oculigera.

Synopsis Specierum.

* *Siphon obtusiusculus, ad apicem emarginatus.*

1. *Puxleianum.* Anfractibus planiusculis, longitudinaliter et crebro subunduloso-striatis; interstitiis transversim striolatis.
2. *undatum.* Anfractibus ventricosis, longitudinaliter costatis et elevato-lineatis, ad dextram transversim undulato-costatis.
3. *antiquum.* Anfractibus ventricosis, longitudinaliter striatis; interstitiis transversim crenatis.

** *Siphon mediocris, integer.*

4. *corneum.* Anfractibus planiusculis, longitudinaliter elevato-lineatis; interstitiis longitudinaliter striolatis.
5. *Bamffium.* Anfractibus convexiusculis, transversim lamellato-costatis: costis numerosis.
6. *turricula.* Anfractibus transversim costatis, longitudinaliter elevato-lineatis, ad dextram abruptè planiusculis.

Shell acutely elevated into a spire, the apex of which is mamillated. Siphon moderately elongated, and recurved; covered, even to its extremities, by the peritreme. Tentacula depressed, triangulated, moderately long, and abruptly dilated at their base externally, where the eyes are inserted.

1. Buccinum Puxleianum.

B. anfractibus planiusculis, longitudinaliter et crebrò subunduloso-striatis ; interstitiis transversim striolatis.

Habitat in sinu, Bantry Bay dicto, in Hibernia. Mus. D. Bingham.

Whorls flattish, longitudinally and closely striated ; the striæ somewhat undulated, the interstices striolated transversely. The striæ on all the whorls were equidistant, and of the same proportion.

This very beautiful and new species of Buccinum was discovered by J. L. Puxley, Esq. in Bantry Bay, and was sent by him to General Bingham, who kindly permitted me to draw up the above description. This specimen was about $1\frac{1}{2}$ inch in height, and had all the indications of extreme youth, no peritreme being visible in the posterior aspect of the aperture.

2. Buccinum undatum. Pl. II. fig. 10.

B. anfractibus ventricosis, longitudinaliter costatis et elevatolineatis, ad dextram transversim undulato-costatis.

Buccinum undatum, *Linn. Syst. Nat.* i. 1204 ; *Penn. Brit. Zool.* iv. 121. pl. 73. fig. 90 ; *Mont. Test. Brit.* 237 ; *M. & R. Trans. Linn. Soc.* viii. 137 ; *Flem. Edinb. Encycl.* vii. 70 ; *Dill. Desc. Cat.* 632 ; *Turt. Conch. Dict.* 13.

Buccinum vulgare, *Da Costa, Brit. Conch.* 122. t. 6. fig. 6.

Var. β. anfractu ultimo non undulato-costato.

Buccinum striatum, *Penn. Brit. Zool.* iv. 121. pl. 74. fig. 91.

Habitat in mari profundo, arenoso, vulgatissimum.

Whorls ventricose, with longitudinal ribs and elevated lines ; their left side with undulated ribs. Height five inches.

Animal dirty-white or yellow ; the tentacules, sides, and siphon, mottled, more or less, with pale-brown or sooty-black.

B. undatum is one of the most common of all our shells, and inhabits our sandy shores. It is generally covered with an orange-brown epidermis, and is often banded longitudinally, with reddish or deep-brown of various tints.

3. BUCCINUM ANTIQUUM.

B. anfractibus ventricosis, longitudinaliter striatis, interstitiis transversim crenatis.

Murex antiquus, *Linn. Fn. S.* 2165 ; *Syst. Nat.* i. 1223 ; *M. & R. Trans. Linn. Soc.* viii. 145 ; *Flem. Edinb. Encycl.* vii. 72 ; *Turt. Conch. Dict.* 68 ; *Dill. Desc. Cat.* 724.

Murex despectus, *Penn. Brit. Zool.* iv. 124. t. 58. fig. 98 ; *Mont. Test. Brit.* i. 256.

Testa junior.

Murex decollatus, *Penn. Brit. Zool.* iv. pl. 82. fig. 3.

Habitat in mari profundo, arenoso.

Height from five to seven inches. Whorls of the shell ventricose, striated longitudinally, with the interstices transversely wrinkled.

Inhabits the deep sea, on a sandy ground. It is common on the coasts of Cornwall and Plymouth Sound, off the coast of Kent and Sussex, in the Frith of Forth, and in Orkney and Zetland.

4. BUCCINUM CORNEUM.

B. testâ anfractibus planiusculis, longitudinaliter elevato-lineatis ; interstitiis longitudinaliter striolatis.

Murex corneus, *Linn. Syst. Nat.* xii. 1224. 565 ; *Gmel. Syst. Nat.* 1224. 3552 ; *List. Conch.* 119. f. 5 ; *Anim. Ang.* t. iii. f. 5 ; *Penn. Brit. Zool.* iv. 124. t. lxxvi. f. 99 ; *Mart. Conch.* iv. t. cxliii. f. 1337 ? *Pult. Cat. Dorset.* 43. t. xvii. f. 5 ; *Donov. Brit. Shells,* t. xxxviii ; *Mont. Test. Brit.* 258 ; *M. & R. Trans. Linn. Soc.* viii. 147 ; *Flem. Edinb. Encycl.* vii. 72 ; *Dill. Desc. Cat.* 733 ; *Turt. Conch. Dict.* 89.

Habitat in mari arenoso profundo vulgatissimè. Mus. Montagu et nost. in Mus. Brit.

Color albus. Epidermis fuscescens aut viridescens croceo plùs aut minùs.

Shell with its whorls flattish, with longitudinally elevated lines ; the interstices longitudinally striated. Height three or four inches.

Shell white, the epidermis brownish or greenish tinged more or less with saffron.

Inhabits the deep sea on sandy bottoms abundantly; is often thrown on shore in great profusion during storms. The fishermen use it as a bait for whiting and whiting-pout on the western coasts of Cornwall, Devon, Dorset and Somerset. It is sometimes eaten by the poor people with their breakfast, who consider it a dainty.

5. BUCCINUM BAMFFIUM.

B. testâ anfractibus convexiusculis, transversim lamellato-striatis; costis numerosis.

Murex Bamffius, *Donov. Brit. Shells*, t. clxix. f. 1; *M. & R. Trans. Linn. Soc.* vii. 149; *Dill. Desc. Cat.* 733; *Flem. Edinb. Encycl.* vii. 72; *Turt. Conch. Dict.* 95. sp. 20.

Habitat in mari Britannico, Scotico et Hibernico.

Color albescens, sæpè pallido-carneus, in junioribus rufo-brunneus.

Shell with its whorls slightly convex, transversely laminately-striated with numerous ribs. Height seven-eighths of an inch. Colour whitish, often tinted with pale flesh colour. The number of its ribs are very variable. Operculum very pale horn-coloured. Young specimens are rufous brown.

This species was first discovered on the coast of Bamff, in Scotland, by Mr. Cordiner, and was first made known to the scientific world by Mr. Donovan. It has since been found on the coasts of Scotland, and is by no means uncommon in the Frith of Forth, and on the coasts of Aberdeen; it occurs likewise on the coast of Lincolnshire, on the south and south-western coasts of Ireland, and on the western coasts of Cornwall, Devon, Dorset and Somerset.

6. BUCCINUM TURRICULA.

B. anfractibus transversim costatis, longitudinaliter elevato-lineatis, ad dextram angulatis et abruptè planiusculis.

Murex turricula, *Mont. Test. Brit.* 262. t. ix. f. 1; *M. & R.*

Trans. Linn. Soc. viii. 144; *Flem. Edinb. Encycl.* vii. 71; *Dill. Desc. Cat.* 744; *Turt. Conch. Dict.* 93.

Murex angulatus, *Donov. Brit. Shells,* v. t. 156.

Habitat in mari Britannico, haud valdè infrequens.

Color albus.

Whorls transversely ribbed, with longitudinally elevated lines, angulated on the left side and abruptly flattish. Height three-quarters of an inch. Colour white, surface slightly glossy.

Inhabits the sandy shores of Sandwich in Kent; in Biddeford Bay, Devon; the coasts of Tenby and Langherne; the southern coasts of Ireland, and the Frith of Forth.

Genus 62. Fusus.

Fusus, *Bruguière, Lamarck, De Montfort, Cuvier.*

Murex, *Linnæi,* &c.

Testa super aperturam spirâ altius elevata; ad apicem mamillata. *Sutura* subprofunda. *Siphon* elongatus aut longissimus, rectus ad apicem. *Peritremate* nullo instructus. *Umbilicus* nullus. Animal incognitum.

Shell above its aperture with its spire highly elevated, mamillated at its apex. Siphon elongated or very long, straight, without any peritreme at its apex. Umbilicus none. Animal unknown.

1. Fusus muricatus.

F. testâ anfractibus longitudinaliter sulcatis et transversim costatis; costis nodosis.

Murex muricatus, *Mont. Test. Brit.* 262. t. ix. f. 2; *M. & R. Trans. Linn. Soc.* viii. 146; *Dill. Desc. Cat.* 745; *Flem. Edinb. Encycl.* vii. 73; *Turt. Conch. Dict.* 95.

Habitat in mari Cornubiensi, Danmoniensi, Caledoniensi, Cambriensi et Hiberniensi sat frequens.

Color albidus aut rubescens, viridescente tinctus.

Shell with its whorls longitudinally sulcated and transversely ribbed; the ribs knotted. Colour white or reddish, with a greenish tinge. Height half an inch.

Inhabits the British Seas; is not unfrequently found in deep water off the coasts of Devon, Cornwall, Wales, Ireland, and in Scotland only in the Frith of Forth.

2. **Fusus asperrimus.** Pl. X. fig. 3.

F. testâ anfractibus longitudinaliter elevato-lineatis et transversim costatis; costis tuberculatis. Color niveus.
Fusus asperimus, *Prideaux, MSS.*
Habitat in Danmoniæ Australis mari profundo rarissimè.

Shell with its whorls sculptured with longitudinally elevated lines and transversely costated, the ribs tuberculated. Colour snowy white.

This very rare and interesting species was discovered by my cousin, C. Prideaux, Esq., in the Plymouth Sound. I am indebted to him for the specimen figured in this Plate.

Genus 63. MANGELIA.

Murex et Buccinum *Auctorum.*

Testa acuminata, acutè spiralis. *Siphon* brevis. *Peritrema* posticè conforme, obtusiusculum. *Apertura* ad dextram obtusiuscula, posticè sinuato-emarginata. Animal incognitum.

Shell acuminated, acutely spiral, its siphon short; its peritreme conformable behind; its aperture rather obtuse, on its right side posteriorly notched. Animal unknown.

Synopsis Specierum.

1. *gracilis.* Testâ flavescente albâ nitidâ, fasciâ rubrâ spirali pictâ, suturâ profundâ; anfractibus decem transversim costatis; interstitiis spiraliter et profundè impresso-lineatis.
2. *purpurea.* Testâ purpureâ, suturâ profundâ; anfractibus decem transversim costatis; costis tuberculatis; interstitiis elevato-lineatis.
3. *elegans.* Testâ fuscescente nitidâ, ad apicem purpureâ; suturâ profundâ; anfractibus octo transversim costatis; interstitiis striis angustissimis sculptis.

4. *Cranchiana.* Testâ fuscescente nitidâ, ad apicem nonnunquam purpureâ ; suturâ tenuiter impressâ ; anfractibus septem transversim costatis ; costis nodosis, interstitiis alternatim lineis elevatis (apicalibus exceptis) sculptis.
5. *Pennantiana.* Testâ glaberrimâ albâ semitransparente ; suturâ profundâ ; anfractibus quinque obliquè transversim costatis ; costis sulcatis ; costis et interstitiis transversim striolatis.
6. *Goodalliana.* Testâ albâ, suturâ tenuiter impressâ ; anfractibus quinque transversim costatis ; costis elevato-lineatis, glaberrimis, politis.
7. *lineata.* Testâ albâ, suturâ profundâ ; anfractibus quinque transversim costatis ; costis glaberrimis, politis, testaceo transversim lineatis.
8. *minima.* Testâ castaneâ glabrâ ; anfractibus transversim costatis : interstitiis lineis tenuissimis, elevatis, sculptis.

1. MANGELIA GRACILIS.

M. testâ flavescente, albâ, nitidâ, fasciâ rubrâ pictâ ; suturâ profundâ ; anfractibus decem transversim costatis : interstitiis spiraliter et profundè impresso-lineatis.

Murex gracilis, *Mont. Test. Brit.* 287. t. xv. f. 5 ; *Pult. Cat. Dorset.* t. xiv. f. 18 ; *M. & R. Trans. Linn. Soc.* viii. 143 ; *Dill. Desc. Cat.* 722 ; *Flem. Edinb. Encycl.* vii. 73 ; *Turt. Conch. Dict.* 90.

Murex emarginatus, *Donov. Brit. Shells,* t. clxxix. f. 2.

β. testâ fasciâ brunneâ ornatâ.

Habitat in Danmoniæ et Cornubiæ mari profundo.

Shell yellowish-white, shining with a red band ; its suture deep, with ten transversely costated whorls, the interstices with spirally and deeply impressed lines. Height one inch.

Var. β. is extremely rare ; it is ornamented with a red band. Inhabits the deep sea on the coasts of Devon and Cornwall.

2. MANGELIA PURPUREA.

M. testâ purpurascente, suturâ profundâ; anfractibus decem transversim costatis; costis tuberculatis; interstitiis elevato-lineatis.

Murex purpureus, *Mont. Test. Brit.* 260. t. ix. f. 3; *M. & R. Trans. Linn. Soc.* viii. 148; *Flem. Edinb. Encycl.* vii. 72; *Dill. Desc. Cat.* 743; *Turt. Conch. Dict.* 94.

Habitat in Danmoniæ et Cornubiæ Australis mari profundo. Mus. Mont. et Mus. nostr. in Mus. Brit.

Testa epidermide purpurascente. Peritrema album. Testa internè purpurascens.

Shell with its suture deep, with ten transversely ribbed whorls, the ribs tuberculated, the interstices with elevated lines. Height six-eighths of an inch.

Inhabits the deep sea on the southern coasts of Devon and Cornwall; is most abundant in the Plymouth Sound.

3. MANGELIA ELEGANS.

M. testâ fuscescente, nitidâ, ad apicem purpureâ, suturâ profunda; anfractibus octo transversim costatis; interstitiis striis angustissimis sculptis.

Murex elegans, *Donov. Brit. Shells,* t. clxxvi. f. 3; *Dill. Desc. Cat.* 741.

Murex linearis, *Mont. Test. Brit.* 260. t. ix. f. 4; *M. & R. Trans. Linn. Soc.* viii. 148; *Flem. Edinb. Encycl.* vii. 71; *Turt. Conch. Dict.* 94.

Habitat in mari Cornubiensi Occidentali, haud infrequens. Mus. Mont. et nostr. in Mus. Brit.

Shell pale fuscous, shining, its apex purple; its suture deep; with eight transversely ribbed whorls, the interstices sculptured with very narrow lines. Height half an inch.

Inhabits the southern coasts of Cornwall; is very rare.

4. MANGELIA CRANCHIANA.

M. testâ fuscescente, nitidâ, ad apicem nonnunquam purpureâ; suturâ tenuiter impressâ; anfractibus septem transversim cos-

tatis; costis nodosis, interstitiis alternatim lineis elevatis (apicalibus exceptis) sculptis.

Habitat in mari Danmoniensi, haud valdè infrequens. Mus. Dr. Goodall, Loscombe, et nostr. in Mus. Brit.

Shell pale fuscous, shining, its apex sometimes purple; its suture slightly impressed, with seven transversely ribbed whorls; the ribs knotted; the interstices sculptured (the upper ones excepted) with alternately elevated lines. Height five-eighths of an inch.

Inhabits the southern coasts of Devon, and is not uncommonly taken in the nets of the trawlers; "it sometimes resides very near to the shore, and is taken at the lowest ebbs of the tide."—*J. Cranch.*

5. MANGELIA PENNANTIANA.

M. testâ glaberrimâ, albâ, semitransparente; suturâ profundâ; anfractibus quinque obliquis transversim costatis; costis sulcatis; costis et interstitiis transversim striolatis.

Murex costatus, *Penn. Brit. Zool.* iv. 125. t. lxxxii. f. 2; *Mont. Test. Brit.* 265; *Pult. Cat. Dorset.* 43. t. xiv. f. 4; *Donov. Brit. Shells,* t. xci.; *M. & R. Trans. Linn. Soc.* viii. 144; *Flem. Edinb. Encycl.* vii. 74; *Dill. Desc. Cat.* 744; *Turt. Conch. Dict.* 92.

β. testâ castaneâ, fasciis una aut duabus intensè brunneis ornatâ.

Habitat in Danmoniæ, Cambriæ, Hiberniæ Australis mari sat frequens.

Shell very smooth, white, semitransparent; its suture deep, with five obliquely transversely ribbed whorls; the ribs sulcated; the ribs and the interstices very finely striated. Height three-eighths of an inch.

Inhabits the British sea, on the southern coasts of Devon, Wales and Ireland; is most common in Bantry Bay.

6. MANGELIA GOODALLIANA.

M. testâ albâ, suturâ tenuiter impressâ; anfractibus quinque transversim costatis; costis elevato-lineatis, glaberrimis, politis.

Habitat in mari Cornubiensi Boreali. Mus. D. Goodall, et nost. in Mus. Brit.

Shell white, its suture slightly impressed, with five transversely ribbed whorls ; the ribs very smooth and polished, sculptured with elevated lines.

Inhabits the sea on the northern coasts of Cornwall.

This new and highly interesting species was found by my kind and worthy friend Dr. Goodall, the Provost of Eton, who very kindly communicated to me two very fine specimens which he found in shell-sand from Padstow in Cornwall.

7. MANGELIA LINEATA. Pl. X. fig. 2.

M. testâ albâ, suturâ profundâ ; anfractibus quinque transversim costatis ; costis glaberrimis, politis, testaceo transversim lineatis.

Habitat in mari Hiberniensi propè Cork rarissimè. Mus. nost. in Mus. Brit.

Shell white, its suture deep, with five transversely ribbed whorls ; the ribs very smooth, polished, with transverse testaceous lines.

Inhabits the sea near Cork ; is very rare.

This new and elegant species was given to me by W. J. Drummond, Esq., Professor of Botany at the Botanical Garden at Cork.

8. MANGELIA MINIMA.

M. testâ castaneâ, glabrâ ; fasciâ rubrâ, pictâ ; suturâ profundâ ; anfractibus decem transversim costatis, interstitiis lineis tenuissimis elevatis sculptis.

Buccinum minimum, *Mont. Test. Brit.* 247. t. viii. f. 2 ; *Flem. Edinb. Encycl.* vii. 73 ; *Dill. Desc. Cat.* 744 ; *Turt. Conch. Dict.* 18.

Buccinum brunneum, *Donov. Brit. Shells,* t. clxxix. f. 2.

Habitat in Danmoniæ et Cornubiæ mari vulgatissimè.

Shell chestnut colour, smooth, with a red band, its suture deep, with ten transversely ribbed whorls, the interstices sculptured with very slender elevated lines. Height two-tenths of an inch.

Inhabits the British sea on the southern coasts of Devon and Cornwall, very common.

Genus 64. Bela.

Murex *Auctorum.*

Testa acuminata, acuta. *Apertura* ad sinistram rotundata. *Rostrum* breviusculum, subflexuosum, gradatim obtusiusculum. Animal incognitum.

The shell acuminated, acute, the aperture at its left side rounded; its rostrum rather short, somewhat flexuous and generally somewhat obtuse. The animal unknown.

Synopsis Specierum.

1. *nebula.* Testâ flavescente, fuscescente aut rosaceâ, lineis albidis transversis; anfractibus novem transversim costatis; costis glabris, interstitiis lineis tenuissimis elevatis sculptis.
2. *rufa.* Testâ rufâ, castaneâ aut brunneâ, moderatim turritâ; anfractibus septem transversim costatis; interstitiis lineis transversis elevatis sculptis.
3. *Cranchiana.* Testâ nigrescente, moderatim turritâ; anfractibus sex transversim costatis; costis et interstitiis irregulariter impresso-lineatis.
4. *minima.* Testâ brunneo-nigrescente, glabrâ, moderatim turritâ; anfractibus novem transversim costatis; costis latis, interstitiis lineis impressis sculptis.
5. *septangularis.* Testâ septangulari, fuscescente, subnitidâ, altè turritâ; anfractibus octo; costis latis, distantibus, obliquè descendentibus, suturâ tenuissimâ divisis, spiraliter tenuissimè striolatis.
6. *attenuata.* Testâ griseâ, altè turritâ; anfractibus octo; costis elevatis, distantibus, albis, subflexuosis.
7. *accinctus.* Testâ ocraceo-griseâ, altè turrita; anfractibus sex, singulis, abruptè decrescentibus, angulis prominulis; suturâ profundâ divisis; lineolis tenuissimis, transversis sculptis.

1. BELA NEBULA.

B. testâ flavescente, fuscescente aut rosaceâ; lineis albidis transversis; anfractibus novem transversim costatis; costis glabris; interstitiis lineis tenuissimis elevatis sculptis.

Murex nebula, *Mont. Test. Brit.* 267.—*Suppl.* t. xv. f. 6; *M. & R. Trans. Linn. Soc.* viii. 143; *Flem. Edinb. Encycl.* vii. 71; *Dill. Desc. Cat.* 743; *Turt. Conch. Dict.* 92.

Habitat in maris Britannici littoribus arenosis vulgatissimè.

Shell yellowish, pale fuscous brown or rosy, with transverse white lines; with nine transversely ribbed whorls; the ribs smooth, the interstices sculptured with very narrow elevated lines.

This species is very common on all the coasts of the British seas.

2. BELA RUFA.

B. testâ rufâ, castaneâ aut brunneâ, moderatim turritâ; anfractibus septem transversim costatis; interstitiis lineis transversis elevatis sculptis.

Murex rufus, *Mont. Test. Brit.* 263; *M. & R. Trans. Linn. Soc.* viii. 145; *Flem. Edinb. Encycl.* vi. 71; *Dill. Desc. Cat.* 744; *Turt. Conch. Dict.* 93.

Habitat in Danmoniæ, Cantiæ, Hiberniæ et Caledoniæ sinubus arenosis.

Shell red, chestnut or brown, moderately turrited, with seven transversely ribbed whorls, the interstices sculptured with transverse elevated lines. Height three-eighths and half of an inch.

Inhabits the sandy bays of Great Britain; Sandwich, Kent; Torbay, Devon; Dublin and Bantry Bays in Ireland, and the Frith of Forth in Scotland.

3. BELA CRANCHIANA.

B. testâ nigricante moderatim turritâ; anfractibus sex transversim costatis; costis et interstitiis irregulariter impresso-lineatis.

Color testæ nigrescens; apertura rubro-flavescens; peritrema atro-purpureum.

Habitat in Cornubiæ mari profundo. Mus. nost. in Mus. Brit. Alt. $\frac{1}{2}$ unc.

Shell blackish, moderately turrited, with six transversely ribbed whorls; the ribs and the interstices sculptured with irregularly impressed lines. Height half an inch.

Inhabits the deep sea off the Falmouth Harbour and in Scotland.

This species was discovered by my worthy friend Mr. J. Cranch.

4. BELA MINIMA.

B. testâ brunneô-nigrescente, glabrâ, moderatim turritâ; anfractibus novem transversim costatis; costis latis, interstitiis lineis impressis sculptis.

Habitat in mari Danmoniensi rarissimè. Mus. nost. in Mus. Brit.

Shell brown, inclining to pale black, smooth, moderately turrited, with nine transversely ribbed whorls; the whorls broad, the interstices sculptured with impressed lines. Height two-eighths of an inch.

Inhabits the British sea at Salcombe and Torcross, Devon.

This new and elegant species was also discovered by the zealous and active collector Mr. J. Cranch; it is extremely rare.

5. BELA SEPTANGULARIS.

B. testâ septangulari, fuscescente, subnitidâ, altè turritâ; anfractibus octo; costis latis, distantibus, obliquè descendentibus, suturâ tenuissimâ divisis, spiraliter tenuissimè striolatis.

Murex septangularis, *Mont. Test. Brit.* 268. t. ix. f. 5; *Donov. Brit. Shells,* t. clxxix. f. 4; *M. & R. Trans. Linn. Soc.* viii. 144; *Flem. Edinb. Encycl.* vii. 72; *Dill. Desc. Cat.* 745; *Turt. Conch. Dict.* 92.

Habitat in Angliæ et Hiberniæ sinubus arenosis profundis. Mus. Montagu in Mus. Brit. Alt. $\frac{1}{2}$ unc.

Shell septangular, pale fuscous-brown, somewhat shining, highly turrited, with eight whorls; with broad ribs apart from each other, descending obliquely, (divided by a very narrow suture) and sculptured spirally with very fine slender narrow lines. Height half an inch.

Inhabits deep sandy bays in England and Ireland; Falmouth, Cornwall; Salcombe Bay, Devon; Dublin, Cork, Bantry and Dingle Bays, Ireland.

6. BELA ATTENUATA.

B. testâ griseâ, altè turrita; anfractibus octo; costis elevatis, distantibus, albis, subflexuosis.

Murex attenuatus, *Mont. Test. Brit.* 266. t. ix. f. 6; *M. & R. Trans. Linn. Soc.* viii. 143; *Flem. Edinb. Encycl.* vii. 71; *Dill. Desc. Cat.* 742; *Turt. Conch. Dict.* 91.

Habitat in Angliæ sinubus profundis arenosis. Mus. Montagu et nost. in Mus. Brit. Alt. ½ unc.

Shell grey, highly turrited, with eight whorls; with elevated, distant, white, subflexuous ribs. Height half an inch.

Inhabits the deep sandy bays of Biddeford, Falmouth and Dublin.

7. BELA ACCINCTA.

B. testâ ocraceo-griseâ, altè turritâ; anfractibus sex, singulis abruptè decrescentibus; angulis prominulis, suturâ profundâ divisis, lineolis tenuissimis, transversis, impressis sculptis.

Murex accinctus, *Laskey Trans. Wern. Soc.* i. 173. t. viii. f. 14; *Turt. Conch. Dict.* 91.

Habitat in mari Caledoniensi Boreali rarissimè. Alt. $\frac{4}{8}$ unc. Mus. D. Wilson.

Shell ocreaceous grey, highly turrited, with six whorls abruptly decreasing, their angles rather prominent, divided by a deep suture, and sculptured with very fine narrow transverse impressed lines. Height $\frac{4}{8}$ of an inch.

This species is very rarely found in the northern sea of Scotland.

STIRPS IV.

Genus 65. APORRHAÏS.

Aporrhaïs, *Da Costa.*
Strombus, *Linnè.*
Rostellaria, *Lamarck.*

Testa acutè et altè elevata; *anfractu* ultimo in alam digitatam dilatato. Animal incognitum.

Shell acutely and highly elevated; its last whorl dilated in a digitated wing. Animal unknown.

APORRHAIS PES-PELICANI.

A. testâ griseo-rufescente; anfractibus, medio angulato-noduloso, ultimo tridigitato; digitis duobus, sinistris, brevibus, dextro valdè elongato.

Strombus Pes-Pelicani, *Linn. Syst. Nat.* xii. i. 1207; *Gmelin Syst. Nat.* 3507. 2; *Lister Conch.* t. cccccccclxv. f. 20. *b.* et ccccccccccclix. f. 3; *Bonanni Recr.* t. iii. f. 85 et 89; *Petiv. Gaz.* t. lxxix. f. 6; *Gualt. Test.* t. liii. f. A, B, C; *D'Argenv. Conch.* t. xiv. f. M; *Favanne Conch.* t. xxii. f. D. 1. D. 2; *Seba Mus.* iii. t. lxii. f. 17; *Knorr. Vergn.* iii. t. vii. f. 4; *Martini Conch.* iii. t. lxxxv. f. 848–850; *Mus. Gottwald.* f. 130. *a, b*; *Murray in Amœn. Acad.* t. 4. f. 21; *Penn. Brit. Zool.* iv. 122. t. lxxv. f. 94; *Donov. Brit. Shells,* t. iv.; *Mont. Test. Brit.* 253; *M. & R. Trans. Linn. Soc.* viii. 72; *Flem. Edinb. Encycl.* vii. 72; *Dill. Desc. Cat.* 656; *Turt. Conch. Dict.* 167.

Aporrhais quadrifidus, *Da Costa, Brit. Conch.* 136. t. vii. f. 7.

Rostellaria Pes-Pelicani, *Lam. Hist. Nat. des Anim. sans Vert.* vii. 193.

Habitat in mari Europæo vulgatissimè. Alt. 2 unc.

Shell grey, inclining to reddish; the middle of the whorls

with angulated knots; the last whorl tridigitated; the two left fingers short, the right finger long. Height two inches.

All the digitations are divaricating, and in very fine specimens are very acute. The respiratory canal is oblique and somewhat foliaceous, and being situated a little aside, seems to form a fourth digitation, on its right side; the sinus on this side is contiguous to the canal in which the respiratory tube or rostrum is situated when exserted for respiring.

This species, which was known to the ancients, is common in all the European seas. There are two species beside this, which exist in the ocean, and three fossil species.

Strombus costatus of British authors is the young of this species.

STIRPS V.

Genus 66. Cerithium.

Cerithium, *Lamarck.*

Testa conicè et altè elevata. *Sutura* tenuis. *Apertura* paulùm volutata et reflexa. *Peritrema* tenuè perfectum. Animal incognitum.

Shell conically and highly elevated, its suture slender, its aperture at the left voluted and reflexed; its peritreme thin but perfect.

Synopsis Specierum.

* *Testa costis tuberculatis.*

1 *reticulatum.* Testâ rufo-brunneâ; anfractibus duodecim, transversim costatis; costis tuberculatis, tuberculis æqualibus in serie quadruplâ dispositis, interstitiis reticulatis.

2. *tuberculare.* Testâ castaneâ; anfractibus decem transversim costatis; costis tuberculatis; tuberculis æqualibus in serie triplici dispositis; interstitiis reticulatis.

3. *subulatum.* Testâ albidâ; anfractibus quindecim, transver-

sim tuberculatis; tuberculis æqualibus, serie duplici dispositis, lineâ latâ spirali impressâ divisis.

4. *adversum.* Testâ heterostrophâ, opacâ, fuscescente; anfractibus undecim, transversim tuberculatis; tuberculis in serie triplici mediis minoribus uno et duobus alternatim dispositis.

** *Testa costis simplicibus.*

5. *Spencerium.* Testâ glabrâ; anfractibus costis simplicibus, obliquis sculptis.

6. *elegantissimum.* Testâ albâ, semitransparente, glabrâ, costis simplicibus rectis sculptis.

1. Cerithium reticulatum.

1. C. testâ rufo-brunneâ; anfractibus duodecim, transversim costatis; costis tuberculatis; tuberculis æqualibus, in serie quadruplâ dispositis; interstitiis reticulatis.

Murex reticulatus, *Borlace Cornwall*, 277; *Palt. Cat. Dorset.* 43. t. xiv. f. 13; *Mont. Test. Brit.* 272; *M. & R. Trans. Linn. Soc.* viii. 150; *Flem. Edinb. Encycl.* vii. 79; *Dill. Desc. Cat.* 746; *Turt. Conch. Dict.* 746.

Strombiformis reticulatus, *Da Costa Brit. Conch.* 117. t. viii. f. 13.

Habitat in mari Cantiano. Alt. $\frac{6}{8}$ unc.

Shell rufous-brown, with twelve transversely ribbed whorls; the ribs tuberculated; the tubercles equal, arranged in a quadruple series, the interstices reticulated. Height six-eighths of an inch.

Inhabits the sea at Sandwich in Kent.

2. Cerithium tuberculare.

C. testâ castaneâ; anfractibus decem, transversim costatis; costis tuberculatis; tuberculis æqualibus, ins erie triplici dispositis; interstitiis reticulatis.

Murex tubercularis, *Mont. Test. Brit.* 270; *M. & R. Trans.*

Linn. Soc. viii. 150; *Flem. Edinb. Encycl.* vii. 78; *Dill. Desc. Cat.* 745; *Turt. Conch. Dict.* 96.

Habitat in mari Cantiano. Alt. $\frac{1}{4}$ unc.

Shell chestnut-brown, with ten transversely ribbed whorls; the ribs tuberculated; the tubercles equal, arranged in a triple series; the interstices reticulated. Height half an inch.

Inhabits the sea on the coast of Kent.

3. CERITHIUM SUBULATUM.

C. testâ albidâ; anfractibus quindecim, transversim tuberculatis; tuberculis æqualibus, in serie triplici dispositis, lineâ latâ spirali impressâ divisis.

Murex subulatus, *Mont. Test. Brit. Supp.* 115. t. xxx. f. 6; *Flem. Edinb. Encycl.* 77; *Dill. Desc. Cat.* 145; *Turt. Conch. Dict.* 96.

Habitat in mari Caledoniensi occidentali rarissimè. Alt. $\frac{1}{2}$ unc. Mus. Montagu in Brit. Mus.

Shell white, with fifteen transversely tuberculated whorls; the tubercles equal, arranged in a triple series, divided by a broad impressed line. Height half an inch.

This species is found very rarely in the western sea of Scotland.

4. CERITHIUM ADVERSUM.

C. testâ heterostrophâ, opacâ, fuscescente; anfractibus undecim, transversim tuberculatis; tuberculis in serie triplici (mediis minoribus) uno et duobus alternatim dispositis.

Murex adversus, *Walk. Test. Min. Rar.* f. 48; *Adams Micr. Ess.* t. xiv. f. 21; *Mont. Test. Brit.* 271; *M. & R. Trans. Linn. Soc.* viii. 151; *Flem. Edinb. Encycl.* vii. 78; *Dill. Desc. Cat.* 758; *Turt. Conch. Dict.* 97.

Turbo punctatus, *Turt. Linn.* iv. 501.

Habitat in mari, Danmoniensi, Cornubiensi et Caledoniensi Boreali.

Shell heterostrophe, opaque, pale fuscous-brown, with eleven transversely tuberculated whorls; the tubercles in a triple series (the middle ones smallest), arranged alternately one and two.

Inhabits the British sea on the coasts of Devon, Cornwall, and the northern coasts of Scotland.

5. CERITHIUM SPENCERIANUM.

C. testâ glabrâ; anfractibus costis simplicibus obliquis sculptis. Habitat in mari Danmoniensi occidentali profundo rarissimè. Alt. $\frac{5}{8}$ unc.

Shell smooth, the whorls sculptured with simple oblique ribs. Height five-eighths of an inch.

This new species was discovered by Mr. Spencer in deep water off Torquay; I have seen no living specimens; the colour without the epidermis is dirty white.

6. CERITHIUM ELEGANTISSIMUM.

C. testâ albâ, semitransparente, glabrâ; anfractibus costis simplicibus rectis sculptis.

Helix elegantissima, *Walk. Test. Min. Rar.* f. 39; *M. & R. Trans. Linn. Soc.* viii. 209.

Turbo acutus, *Donov. Brit. Shells,* v. t. clxxviii. f. 3.

Turbo elegantissimus, *Mont. Test. Brit.* 298. t. x. f. 2; *Flem. Edinb. Encycl.* vii. 73; *Dill. Desc. Cat.* 146; *Turt. Conch. Dict.* 209.

Habitat in Danmoniæ et Cornubiæ mari profundo, rarissimè. Alt. $\frac{1}{2}$ unc.

Shell white, transparent, smooth; the whorls sculptured with simple straight ribs. Height one-quarter of an inch.

This most elegant species was first found by Mr. J. Cranch off Falmouth in deep water; it has since been found rather plentifully at Torquay in Devon by Mr. Spencer of Torquay.

FAMILY IV. TURBONIDÆ.

Turbo, Trochus, et Helix, *Auctorum.*

Testa plùs aut minùs elevato-spiralis. *Apertura* rotundata, aut ovata, et ad dextram posticè acuminata (in heterostrophis ad sinistram). *Pallium* simplex.

Shell with its spire more or less elevated; its aperture rounded or oval, and acuminated on the right side behind (in heterostrophes or reversed shells on its left side). Mantle simple.

The type on which this family is founded is *Turbo,* this name applying to all the genera which it comprehends.

It is necessary for me to observe, respecting the genera which I have established in this family, that I have merely followed the examples of the Chevalier de Lamarck, Jules-César Savigny, H. M. Ducrotay de Blainville, Rafinesque, Say, Denys de Montfort and other foreign naturalists, exactly in the same plan, with some very slight variation in the nomenclature of the parts of the shell; and as I have had opportunities of observing much respecting their animals and their œconomy, I am induced perhaps to divide them too minutely.

Synopsis Stirpium et Generum.

Stirps 1. Testa alta vel altissima, turrita.

Sutura angusta	67. Sabanæa.
Testa conica. Spira mediocris. Operculum tenue	68. Assiminia.
Testa glabra, fortè costata transversim costis posticè reflexis. Peritrema crassissimum	69. Scalaria.
Sutura profunda	70. Turritella.
Sutura profunda. Peritrema perfectum.	71. Turbonella.

Sutura profunda. Umbilicus apertus, perforatus. Apertura posticè ad dextram tenuiter angulata	72. Alvania.
Apex acutus. Peritrema ad sinistram et anticam dilatatum	73. Zippora.

Stirps 2. Testa conica. Spira brevis.

Testa supra carinam anfractu basilari conica	74. Trochus.
Testa obtusè conica. Apertura integra. Umbilicus in junioribus apertus	75. Montagua.
Testa moderatim elevata. Umbilicus peritremate clausus. Anfractus subtumidi	76. Neptheusa.
Testa gibbosa. Umbilicus apertus	77. Gibbula.
Testa globosa, quasi inflata. Anfractus basilaris maximus. Sutura profunda.	78. Natica.
Testa spiralis, gibba, subtùs plana. Apertura semi-orbicularis. Peritrema planum	79. Nerita.
Testa anfractu basilari maximo. Apertura ad dextram, mediam et sinistram semicircularis. Pars posterior peritremate plano, anticè recto	80. Neritina.
Testa spirâ depressa. Anfractus basilaris maximus. Peritrema posticè crassum, triangulatim excavatum, ad dextram et ad sinistram gradatim angustum.	81. Temina.

Stirps 3. Testa spirâ depressa.

Testa moderatim elevata. Apertura posticè acuminata. Peritrema ad sinistram crassum, anticè et ad dextram tenue	82. Turbo.
Testa super aperturam conice elevata. Sutura profunda. Peritrema perfectum	83. Persephona.

Testa sæpiùs moderatim elevata. Anfractus tumidi. Sutura profunda. Apertura angulo posticè. Peritrema extra partes sinistras anticas et dextras reflexum. Anfractus basilaris maximus	84. Epheria.
Testa anfractibus quinque inflatis. Apertura angulo ad dextram posticè. Sutura profunda. Apex mammillatus.	85. Zacanthusa.
Testa spirâ acuta. Anfractus transversim costatus, basilaris, subglobosus. Peritrema crassum et reflexum	86. Lamarckia.
Testa crassa, conica. Anfractus quinque. Sutura profunda. Peritrema perfectum, crassum, dilatatum	87. Medoria.
Testa planiuscula, apice paululùm producta. Apertura rotunda. Umbilicus angustus	88. Margarites.
Testa spiraliter elevata, apice mammillata. Sutura profunda. Apertura ovata. Peritrema perfectum, posticè rectum.	89. Zenoë.
Testa spiraliter et altè elevata, apice mammillata. Sutura profunda. Apertura ovata, ad dextram subacuminata. Peritrema anticè et lateraliter crassum, posticè nullum	90. Glaucothoë.
Testa crassa, elevata, apice acuta. Sutura profunda. Apertura rotundata. Peritrema nullum. Operculum calcareum	91. Eudora.
Testa crassa, altè conico-turrita. Apertura subovata, ad dextram acutè angulata. Peritrema anticè crassiusculum, posticè utrinque gradatim acuminatum et reflexum. Sutura tenuissima	92. Balcis.

STIRPS I.

Genus 67. SABANÆA.

Turbo, *Auctorum.*

Testa spiraliter elevata. *Sutura* angusta. *Apertura* ferè rotundata, posticè acuminata.

Animal ore rostriforme, elongatum, teres. *Tentacula* acuminata, elongata, ad apicem obtusiuscula; externè ad basin dilatata oculigera. *Oculi* convexiusculi, rotundati. *Pes* ultra oculos non productus, anticè bilobus; lobi rotundati; posticè rotundiusculus.

Species omnes hujus generis in littore arenoso aut in thalassophyto inveniuntur.

Shell spirally elevated behind; its suture narrow; its aperture rounded; acuminated behind.

Animal with an elongated, rostriform, rounded mouth. Tentacula acuminated, elongated; their extremities rather obtuse; their bases externally dilated bear the eyes, which are slightly convex and round. Foot not produced beyond the eyes; anteriorly bilobate, the lobes rounded; behind slightly rounded.

All the species of this genus are found on sandy shores, or on Fuci, Ulvæ, &c.

Synopsis Specierum.

1. *eburnea.* Testâ eburneâ, elevatissimâ, ventricosâ; anfractibus sex, subventricosis, longitudinaliter crenulatis, basilari magno. Suturâ profundâ. Aperturâ rotundato-ovali.
2. *ventricosa.* Testâ pallido-corneâ, conicâ, nitidâ, semitransparente; anfractibus sex, ventricosis, obscurè rugulosis, basilari maximo. Aperturâ suborbiculari.
3. *rubra.* Testâ rufo-brunneâ, conicâ, nitente, glabrâ; anfractibus quinque, tenuiter ventricosis, basilari mediocri. Aperturâ suborbiculari.
4. *interrupta.* Testâ conicâ, nitente, transparente; anfractibus quinque, tumidis, altè elevatis. Aperturâ subovali. Peritremate externè non valdè tenui.

5. *vittata.* Testâ conicâ, acutâ, transparente, nitidâ; anfractibus quinque, non altè productis. Aperturâ suborbiculari. Peritremate ad dextram tenui, ad sinistram paululum incrassato.
6. *Montaguana.* Testâ albidâ, glabrâ; anfractibus sex, planiusculis. Aperturâ ovali. Peritremate posticè uni-plicato.
7. *plicata.* Testâ albâ, glabrâ, semitransparente, apice obtusiusculo; anfractibus planiusculis. Aperturâ ovali. Peritremate posticè tenuissimo, emarginato et uni-plicato.
8. *unifasciata.* Testâ conicâ, glabrâ; anfractibus quinque. Suturâ tenuissimâ. Aperturâ rotundato-ovali. Peritremate ad dextram tenui, externè paululum reflexo.
9. *ulva.* Testâ crassâ, opacâ, apice acuto; anfractibus septem aut octo planis. Suturâ angustâ, profundâ, paululum rugulatâ. Aperturâ subovali. Peritremate ad sinistram tenuissimo, ad dextram reflexo.
10. *paucicostata.* Testâ albâ, glabrâ; anfractibus planis, transversim pauciter costatis. Aperturâ suborbiculari.
11. *Binghamiana.* Testâ fuscescente, glaberrimâ, politâ, nitente; anfractibus planis. Suturâ tenuissimâ. Aperturâ rotundato-ovali.

1. SABANÆA EBURNEA.

S. testâ eburneâ, elevatissimâ, ventricosâ; anfractibus sex, subventricosis, longitudinaliter crenulatis, basilari magno; suturâ profundâ; aperturâ rotundato-ovali.

Turbo eburneus, *Adams, Micros.* t. xiv. f. 15; *Walk. Test. Min. Rar.* f. 36.

Turbo ventricosus, *Mont. Test. Brit.* 317. t. xii. f. 13; *M. & R. Trans. Linn. Soc.* viii. 164; *Flem. Edinb. Encycl.* vii. 74; *Dill. Desc. Cat.* 783; *Turt. Conch. Dict.* 204.

β. testâ rubescente.

δ. testâ pallido-testaceâ.

Habitat in mari Cantiano, haud infrequens. Alt. $\frac{1}{8}$ unc.

Color eburneus, rariùs rubescens, aut pallidè testaceus.

Shell ivory white, extremely elevated, ventricose; whorls six, rather ventricose, longitudinally crenated, the basal whorl

large; suture very deep; aperture rounded-oval. Height one-eighth of an inch.

Var. β. Shell reddish.

Var. δ. Shell pale testaceous.

Inhabits the sea near Sandgate, Sandwich and Folkestone in Kent. Dead specimens without their epidermis are very commonly, but living ones very rarely found. The specimen from which this description was taken I found in a pool amongst the rocks between Sandgate and Dover.

2. SABANÆA VENTRICOSA.

S. testâ pallidò-corneâ, conicâ, nitidâ, semitransparente; anfractibus sex, ventricosis, obscurè rugulosis, basilari maximo; aperturâ suborbiculari.

Habitat in sinubus arenosis rarissimè. Mus. nost. in Mus. Brit.

Shell pale horn-coloured, conic, shining, semitransparent; its whorls six, tumid, obscurely rugose; the lower whorl very large; aperture suborbicular. Height five-eighths of an inch.

This extremely rare shell was found in the Salcombe estuary by C. Prideaux, Esq., and in Torbay by Mr. Griffiths.

3. SABANÆA RUBRA.

S. testâ rufo-brunneâ, conicâ, nitente, glabrâ; anfractibus quinque, tenuiter ventricosis, basilari mediocri; aperturâ suborbiculari.

Turbo ruber, *Adams, Trans. Linn. Soc.* iii. t. xiii. f. 21–22; *Mont. Test. Brit.* 320; *M. & R. Trans. Linn. Soc.* viii. 162; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 782; *Turt. Conch. Dict.* 202.

Habitat in mari Britannico, Hiberniensi et Caledoniensi. Mus. Montagu et nost. in Mus. Brit. Alt. $\frac{1}{8}$ unc.

Shell rufous-brown, conic, shining, smooth; its whorls five, slightly ventricose, the basal whorl moderate; aperture suborbicular. Height one-eighth of an inch.

Inhabits the British sea, Falmouth and Padstow, Cornwall;

Torbay and Salcombe, Devon; Dublin, Bantry, Cork and Dingle Bays, Ireland; and in the Frith of Forth, Scotland.

4. SABANÆA INTERRUPTA.

S. testâ conicâ, nitente, transparente; anfractibus quinque, altè elevatis; aperturâ suborbiculari; peritremate externè non valdè tenui.

Turbo interruptus, *Adams, Trans. Linn. Soc.* v. 3. t. i. f. 16–17; *Donov. Brit. Shells,* t. lxxviii. f. 8; *Mont. Test. Brit.* 329. t. xx. f. 8; *M. & R. Trans. Linn. Soc.* viii. 166; *Flem. Edinb. Encycl.* vii. 15; *Dill. Desc. Cat.* 205; *Turt. Conch. Dict.* 205.

Habitat in mari Danmoniensi, Cambriensi, Australi. Mus. Montagu et nost. in Mus. Brit. Alt. $\frac{1}{8}$ unc.

Color albus aut corneus, rarissimè purpurascens aut fuscescens.

Shell conic, shining, transparent; its whorls five, highly elevated; its aperture suborbicular; its peritreme not very thin externally. Height four-eighths of an inch.

Inhabits the British seas on the southern coasts of Devon and Wales.

Colour white or horn, very rarely purplish or pale fuscous brown.

It is named *interrupta* from the coloured streaks being generally interrupted.

5. SABANÆA VITTATA.

S. testâ conicâ, acutâ, transparente, nitidâ; anfractibus quinque, non altè productis; aperturâ suborbiculari; peritremate ad dextram tenui, ad sinistram paululum incrassato.

Turbo vittatus, *Donov. Brit. Shells,* t. clxxviii. f. 1.

Turbo cingillus, *Mont. Test. Brit.* 328. t. xii. f. 7; *M. & R. Trans. Linn. Soc.* viii. 165; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 782; *Turt. Conch. Dict.* 205.

Habitat in mari Danmoniensi et Hiberniensi, in thalassophytis. Mus. Montagu et nost. in Mus. Brit. Alt. $\frac{1}{8}$ et $\frac{1}{4}$ unc.

Color albus, rufo-brunneo fasciatus.

Shell conic, acute, transparent, shining; whorls five, not produced highly. Aperture suborbicular. Peritreme with its right side thin, its left slightly incrassated. Height one-eighth and a quarter of an inch.

Inhabits the southern coasts of Devon and Ireland, on Fuci.

6. SABANÆA MONTAGUANA.

S. testâ glabrâ, albidâ; anfractibus sex; peritremate posticè uni-plicato.

Turbo unidentatus, *Mont. Test. Brit.* 324; *M. & R. Trans. Linn. Soc.* viii. 324; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 781; *Turt. Conch. Dict.* 781. sp. 75.

Habitat in mari Danmoniensi et Hiberniensi rarissimè. Mus. Montagu et nost. in Mus. Brit. Alt. $\frac{2}{8}$ unc.

Shell smooth, whitish; the whorls five. Peritreme with one fold behind. Height two-eighths of an inch.

Inhabits the sea on the coasts of Devon and Ireland, but is very rare.

I found this species in Montagu's collection, and afterwards found a few specimens in Dingle Bay.

7. SABANÆA PLICATA.

S. testâ albâ, glabrâ, semitransparente; apice obtuso; anfractibus planiusculis; peritremate posticè tenuissimè emarginato et uni-plicato.

Turbo plicatus, *Mont. Test. Brit.* 225. t. xxi. f. 2; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 222; *Turt. Conch. Dict.* 781.

Habitat in mari Danmoniensi et Hiberniensi Australi rarissimè. Mus. Montagu et nost. in Mus. Brit. Alt. $\frac{1}{8}$ unc.

Shell smooth, white, semitransparent; apex obtuse; whorls six, rather flattened. Peritreme with one very slight notch and fold behind. Height one-eighth of an inch.

Inhabits the British seas: Salcombe Bay, Devon; Dublin and Bantry Bays in Ireland.

8. SABANÆA UNIFASCIATA.

S. testâ conicâ, crassâ, glabrâ; anfractibus quinque; suturâ tenuissimâ; aperturâ rotundatâ, ovali; peritremate ad dextram tenui, externè paululum reflexo.

Turbo trifasciatus, *Adams, Trans. Linn. Soc.* v. 2. t. i. f. 13, 14?

Turbo unifasciatus, *Mont. Test. Brit.* 327; *Supplem.* t. xx. f. 6; *M. & R. Trans. Linn. Soc.* viii. 163; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 784; *Turt. Conch. Dict.* 201. sp. 24.

Habitat in mari Britannico in thalassophytis. Mus. Montagu et nostr. in Mus. Brit. Alt. $\frac{1}{8}$ unc.

Shell conic, thick, smooth. Whorls five. Suture very slender. Aperture roundly oval. Peritreme on the right side thin, externally a little turned out. Height one-eighth of an inch. Colour whitish, with a purple brown band on the basal whorl, sometimes with two.

Inhabits the sea on various species of Fucus: Southampton, Hampshire, Barrow Island.

9. SABANÆA ULVÆ.

S. testâ crassâ, opacâ, apice acuto; anfractibus septem aut octo, planis; suturâ angustâ, profundâ, paululum rugatâ; aperturâ subovali; peritremate ad sinistram tenuissimo, ad dextram reflexo.

Turbo Ulvæ, *Penn. Brit. Zool.* iv. t. lxxxvi. f. 120; *Da Costa, Brit. Conch.* 105; *Pulteney, Cat. Dorset.* 49. t. xviii. f. 12; *Mont. Test. Brit.* 318; *M. & R. Trans. Linn. Soc.* viii. 164; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 784; *Turt. Conch. Dict.* 204. sp. 26.

Habitat in mari Britannico in ulvas, præsertim in æstuariis. Alt. $\frac{3}{8}$ unc.

Shell thick, opaque. Apex acute. Whorls seven or eight, plain. Suture narrow, deep, slightly rough. Aperture suboval. Peritreme on the left side very thin, on the right turned out. Height three-eighths of an inch. Colour grey, greenish, or dull reddish brown.

Inhabits most of the British coasts, especially in estuaries, on *Ulva*.

10. SABANÆA PAUCICOSTATA.

S. testâ glabrâ, albâ; anfractibus transversim et raro costatis; aperturâ suborbiculari.

Habitat in mari Danmoniensi et in Hiberniæ sinubus Dubliensi et Bantryensi. Mus. nostr. in Mus. Brit.

Inhabits the sea: Dublin and Bantry Bays, Ireland; Salcombe, Devon.

Shell smooth, white. Whorls transversely ribbed, with very few ribs. Height one-twelfth of an inch.

This new species was first given to me by Miss Hutchings of Bantry Bay, Ireland; I have likewise received one specimen from Mr. Charles Prideaux, who found it in the Salcombe estuary.

11. SABANÆA BINGHAMIANA.

S. testâ fuscescente, glaberrimâ, politâ, nitente; anfractibus planis; suturâ tenuissimâ; aperturâ rotundato-ovali.

Habitat in Danmoniæ mari prope Weymouth in Dorsetiâ rarissimè. Mus. nostr. in Mus. Brit. ex dono Gen. Bingham.

Shell pale fuscous, very smooth, polished and shining. Height one-eighth of an inch.

Inhabits the sea: Torbay, Devon. Discovered by my friend General Bingham, at Weymouth in Dorsetshire.

I think it highly probable that *Turbo trifasciatus, subfuscus* and *membranaceus* of Mr. Adams, described in the fifth volume of the Transactions of the Linnæan Society, pages 2 and 3, and figured in plate 1, belong to this genus.

Genus 68. ASSIMINIA.

Testa conica. *Spira* mediocris.

Animal tentaculis duobus brevibus, apice paulò angustioribus obtusis, ad apicem oculigeris, instructum. *Oculi* parvi, rotundi. *Operculum* tenue.

Shell conic, its spire moderate.

Animal with short tentacles, a little narrower at their points, which are obtuse, bearing eyes at their extremities. Eyes small. Opercule thin.

From the form of the shell this genus might be considered as belonging to the second Stirps, but the animal proves that it is more nearly allied to *Sabanæa* than to any other of the British genera.

1. ASSIMINIA GRAYANA. Tab. IX. figs. 4, 5.

A. testâ glabrâ, nigrescente.

Animal suprà nigricans, subtùs pallidè lutescente-albidum. Tentacula apice extremo hyalina.

Habitat in paludibus salinis prope Greenwich in Cantiâ. Alt. $\frac{2}{8}$ unc.

Shell smooth and blackish. Height two-eighths of an inch.

Animal blackish above, pale lutescent whitish below. Apex of the tentacles extremely transparent.

Inhabits salt marshes near Greenwich in Kent.

Genus 69. SCALARIA.

Scalaria, *Lamarck, Cuvier.*
Turbo, *Auctorum.*

Testa glabra, altissimè turrita, fortè transversim costata. *Costæ* posticè reflexæ. *Apertura* rotunda. *Peritrema* crassissimum.

Animal: *os* in rostrum valdè elongatum productum, ad basin utrinque cirrhis clavatis instructum. *Tentacula* longissima, acutissima. *Pes* brevis, posticè abruptè acuminatus.

Shell smooth, very highly turrited, strongly ribbed transversely, the ribs reflexed. Aperture round; its peritreme very thick.

Animal: The mouth is produced into a very long rostrum, furnished on each side with clavate cirrhi. The tentacles very long and very sharp. The foot is short, and is abruptly attenuated behind.

Synopsis Specierum.

1. *clathrus.* Testâ costis latissimis, rufo-strigatis.
2. *Turtoniana.* Testâ sordidè purpurascente, costis subangustis.
3. *Trevelyana.* Testâ rufescente, brunneâ, costis angustissimis.
4. *clathratulus.* Testâ niveâ, costis plurimis angustissimis.

1. SCALARIA CLATHRUS. Tab. IX. fig. 8.

S. testâ costis latissimis, rufo-strigatis.

Turbo clathrus, *Linn. Syst. Nat.* xii. 1237 ; *Faun. Suec.* 2170; *Lister, Conch.* t. 588. f. 15 ? ; *Gault. Test.* t. lviii. f. H ? ; *Planc. Conc. Min. Not.* t. v. f. 7, 8, testa et animal ; *Rumph. Mus.* t. xxix. f. W ; *Bonanni, Recr.* t. v. f. 6, 7 ; *Knorr, Vergn.* i. t. ii. f. 5 ; *Martini, Conch.* iv. t. cliii. f. 1434 et 1438 ; *Bruguière, Encycl. Méthod.* t. ccccli. f. 3. *a, b* ; *Penn. Brit. Zool.* iv. 129. t. lxxxi. f. 2 et 3 A ; *Da Costa, Brit. Conch.* 115. t. vii. f. 11 ; *Pult. Cat. Dorset.* 5. t. xv. f. *a* ; *Donov. Brit. Shells,* t. xxviii. ; *Mont. Test. Brit.* 296 ; *M. & R. Trans. Linn. Soc.* viii. 170 ; *Flem. Edinb. Encycl.* vii. 76 ; *Dill. Desc. Cat.* 781 ; *Turt. Conch. Dict.* 207. sp. 35.

Scalaria vulgaris, *Lam. Hist. Nat. des Anim. sans Vert.* vi. p. 11. 228.

Habitat in mari Europæo profundo vulgatissimè. Alt. 1 et $\frac{1}{8}$ unc.

Shell with very broad ribs, striated with red. Height one inch and six-eighths.

Inhabits the European sea in deep water ; is very common.

2. SCALARIA TURTONIANA. Tab. IX. fig. 9.

S. testâ sordidè purpurascente, costis subangustis.

Turbo Turtonis, *Turt. Conch. Dict.* 208.

Habitat in Danmoniæ Australis sinubus arenosis haud infrequens. Alt. $1\frac{1}{2}$ unc.

Shell dirty purplish, its ribs rather narrow. Height one inch and a half.

Inhabits the sandy bays in the southern coasts of Devon.

This species was discovered in 1816 by my cousin C. Pri-

deaux, Esq.; it was afterwards found by Mr. J. Cranch in the Plymouth Sound and at Torquay.

3. SCALARIA TREVELYANA. Tab. IX. fig. 10.

S. testâ rufescente-brunneâ, costis angustissimis.

Habitat in mari prope Hartlepool in provinciâ Durhamensi. Mus. Trevelyan, Dr. Goodall, et nostr. in Mus. Brit. Alt. $\frac{6}{8}$ unc.

Shell reddish-brown, its ribs very narrow. Height six-eighths of an inch.

Inhabits the sea near Hartlepool in Durham.

This new species was found on the shore a little south of Hartlepool, by W. C. Trevelyan, Esq., to whom I am indebted for my specimens.

4. SCALARIA CLATHRATULUS.

S. testâ niveâ, costis plurimis angustissimis.

Turbo clathratulus, *Walker, Test. Min. Rar.* f. 45; *Adams, Micros.* t. xiv. f. 19; *Mont. Test. Brit.* 297; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 781; *Turt. Conch. Dict.* 208. sp. 37.

Turbo clathrus β, *M. & R. Trans. Linn. Soc.* viii. 171. t. v. f. 1.

Habitat in Danmoniæ et Cornubiæ Australis mari profundo arenoso, rariùs. Alt. $\frac{3}{8}$ unc.

Shell snowy-white, its ribs very many and very narrow. Height three-eighths of an inch.

Inhabits the deep sea in sandy bottoms, on the southern coasts of Devon and Cornwall, rather rarely.

Genus 70. TURRITELLA.

Turritella, *Lamarck, Cuvier.*
Turbo, *Auctorum.*

Testa altissimè turrita. *Sutura* profunda. *Apertura* rotunda, integra. *Peritrema* emarginatum. *Operculum* corneum.

Animal ore non valdè elongatum, cylindricum. *Tentacula* brevia, obtusiuscula. *Pes* crassus, brevis.

Shell very highly turrited; its suture deep; its aperture round and entire; its peritreme notched; its operculum horny.

Animal with its mouth cylindric, not much elongated. Tentacles short and rather obtuse. Foot short and thick.

Synopsis Specierum.

* *Testâ altissimè turritâ.*

1. *terebra.* Testâ pallido-brunneâ aut rufo-brunneâ, apice acutâ; anfractibus sexdecim, crenulatis, et transversim striolatis.
2. *elegantissima.* Testâ nitidissimâ, semitransparente, brunneâ; anfractibus tredecim, planis, transversim costatis; costis rectis.
3. *Clealandiana.* Testâ tenui, transparente, nitente, albâ, apice obtusâ; anfractibus novem, inflatis, obliquè ascendentibus et obliquè costatis.
4. *nitidissima.* Testâ fragili, nitidissimâ, transparente, fuscescente; anfractibus novem, inflatis; suturâ valdè distinctâ.

** *Testâ moderatim elevatâ.*

5. *vitrea.* Testâ pallidè azureâ, glaberrimâ; anfractibus sex; suturâ valdè distinctâ.
6. *Dorvilleana.* Testâ albâ aut flavescente; anfractibus quinque, inflatis, reticulatis; interstitiis reticulatis et impresso-punctulatis.
7. *eburnea.* Testâ eburneâ, glaberrimâ, nitente; anfractibus sex, tumidis; suturâ valdè distinctâ.
8. *nivea.* Testâ niveâ, politâ; anfractibus lineolis plurimis spiralibus sculptis.
9. *nitida.* Testâ nitidâ, glabrâ, politâ, albidâ; anfractibus novem, globosis; suturâ valdè distinctâ.
10. *Danmoniensis.* Testâ albidâ; anfractibus octo, transversim costatis; lineis longitudinalibus elevatis sculptis; suturâ non valdè distinctâ.

1. TURRITELLA TEREBRA.

T. testâ fulvo-rufescente aut rufo-brunneâ; anfractibus sexdecim, convexis, subæqualiter sulcatis, apice acuto.

Turbo terebra, *List. Anim. Ang.* iii. f. 8; *Conch.* 590. f. 55; *Linn. Syst. Nat.* 1239. No. 645; *Faun. Suec.* 2171; *Gmel. Syst. Nat.* 3608; *Gualt. Test.* 58. f. *c*; *Seba, Mus.* iii. t. lv. f. 32–40; *Martini, Conch.* iv. 1419. t.; *Schröt. Einl. in Conch.* 1. t. iii. f. 21; *Penn. Brit. Zool.* iv. 130. t. lxxxi. f. 113; *Da Costa, Test. Brit.* 112. t. vii. f. 5, 6; *Pult. Cat. Dorset.* 45. t. 15. f. 5, 6; *Mont. Test. Brit.* 293; *M. & R. Trans. Linn. Soc.* viii. 176; *Flem. Edinb. Encycl.* vii. 74; *Dill. Desc. Cat.* 783; *Turt. Conch. Dict.* 216. sp. 56.

Habitat in maribus Europæis vulgatissimè. Alt. 1½ unc.

Shell fulvous-reddish, or rubescent, with sixteen convex valves nearly equally ribbed, its apex acute. Height an inch and a half.

Very common in the European seas.

2. TURRITELLA ELEGANTISSIMA.

T. testâ nitidissimâ, semitransparente, brunneâ; anfractibus tredecim, planis, transversim costatis, costis rectis.

Turbo elegantissimus, *Walker, Test. Min. Rar.* f. 39; *Mont. Test. Brit.* 298; *Flem. Edinb. Encycl.* vii. 74; *Dill. Desc. Cat.* 782; *Turt. Conch. Dict.* 209.

Habitat in mari Cornubiensi, Danmoniensi, Dorsettensi Occidentali et Australi; et Hiberniensi Australi. Mus. Montagu in Mus. Brit. Alt. ¼ unc.

Shell shining, semitransparent, brown, with sixteen flat whorls, transversely ribbed with straight ribs. Height a quarter of an inch.

Inhabits the western and southern coasts of Cornwall, Devon and Dorset, and the southern coasts of Ireland.

3. TURRITELLA CLEALANDIANA.

T. testâ tenui, transparente, nitente, albâ, apice obtusâ; anfractibus novem, inflatis, obliquè ascendentibus et obliquè costatis.

Turbo unicus, *Adams, Micros.* t. xiv. f. 17; *Walker, Test.*

Min. Rar. f. 40; *Mont. Test. Brit.* 299. t. xii. f. 2; *M. & R. Trans. Linn. Soc.* viii. 174; *Flem. Edinb. Encycl.* vii. 73; *Dill. Desc. Cat.* 783; *Turt. Conch. Dict.* 209. sp. 40.

Habitat in Danmoniæ et Hiberniæ littoribus Australibus. Mus. Montagu et nost. in Mus. Brit. Alt. $\frac{1}{8}$ et $\frac{1}{4}$ unc.

Shell slender, transparent, glossy white, its apex obtuse, with nine inflated, obliquely ascending, and transversely ribbed whorls. Height one-eighth and one quarter of an inch.

Inhabits the southern coasts of Devon and Ireland.

A very fine specimen of this species with the epidermis on it was sent to me by Mr. Clealand from Ireland; and as I think that *unicus* is a very improper name for a species, I have therefore named it after Mr. Clealand, a warm advocate in the cause of Zoology.

4. TURRITELLA NITIDISSIMA.

T. testâ altissimâ, nitidissimâ, fragili, transparente, fuscescente; anfractibus tredecim, obliquè ascendentibus.

Turbo nitidissimus, *Walker, Test. Min. Rar.* f. 39; *Mont. Test. Brit.* 299. t. xii. f. 1; *M. & R. Trans. Linn. Soc.* viii. 175; *Flem. Edinb. Encycl.* vii. 72; *Dill. Desc. Cat.* 783; *Turt. Conch. Dict.* 217. sp. 40.

Habitat in Danmoniæ et Hiberniæ mari. Mus. Montagu et nost. in Mus. Brit. Alt. $\frac{2}{8}$ unc.

Shell very high, very glossy, fragile, transparent, pale fuscous brown, with thirteen whorls ascending obliquely. Height two-eighths of an inch.

Inhabits the sea on the coasts of Devon and Ireland; is not very rare.

The shell without its epidermis is white.

5. TURRITELLA VITREA.

T. testâ vitreâ, pallidè azureâ, glaberrimâ; anfractibus sex, suturâ valdè distinctâ.

Turbo vitreus, *Mont. Test. Brit.* 321. t. xii. f. 3; *Flem. Edinb. Encycl.* vii. 73; *Dill. Desc. Cat.* 184; *Turt. Conch. Dict.* 284. sp. 23.

β. testâ albâ.

Habitat in mari Cornubiensi et Danmoniensi. Mus. Montagu et nost. in Mus. Brit. Alt. $\frac{2}{8}$ unc.

Shell pale azure blue, very smooth, whorls six, suture very distinct. Height two-eighths of an inch.

Inhabits the British sea: Falmouth, Whitesand and Causand Bays, Cornwall; Torbay and Salcombe Bays, Devon. It is by no means rare.

Var. β. The shell white.

6. TURRITELLA DORVILLEANA.

T. testâ albâ aut flavescente; anfractibus quinque, inflatis, reticulatis; interstitiis reticulatis et impresso-punctulatis.

Turbo Punctura, *Mont. Test. Brit.* 320. t. xii. f. 5; *Flem. Edinb. Encycl.* vii. 73; *Dill. Desc. Cat.* 784; *Turt. Conch. Dict.* 211.

Habitat in Danmoniæ et Cornubiæ mari Australi. Mus. Montagu in Mus. Brit. Alt. $\frac{1}{10}$ unc.

Shell white or yellowish, with five inflated reticulated whorls; the interstices reticulated, and with small impressed punctures. Height one-tenth of an inch.

Inhabits the British sea: Whitesand Bay, Cornwall, and Salcombe Bay, Devon.

It was first discovered by Mrs. Dorville, after whom I have named it, Col. Montagu's name signifying a 'pricking,' which I must confess puzzles me not a little, to ascertain what could induce him to impose so strange a name to distinguish a species of shell.

7. TURRITELLA EBURNEA.

T. testâ eburneâ, glaberrimâ, nitente; anfractibus sex, tumidis, suturâ valdè distinctâ.

Habitat in mari Cantiano. Mus. nostr. in Mus. Brit. Alt. $\frac{1}{8}$ unc.

Shell ivory white, very smooth, shining, with six tumid whorls; its suture very distinct. Height one-eighth of an inch.

Inhabits the British sea, Folkestone and Sandwich, Kent.

I discovered this new species alive in the year 1817 at Folkestone, and afterwards received some dead specimens from

Mr. Gibbs, who found them at Sandwich. The epidermis is ivory white.

8. TURRITELLA NIVEA.

T. testâ niveâ, politâ; anfractibus lineolis plurimis spiralibus sculptis.

Habitat in mari profundo, prope Hastings. Mus. nost. in Mus. Brit.

Shell snowy white, polished, its whorls sculptured with many slender spiral lines.

Inhabits the deep sea, near Hastings in Sussex. Height three-eighths of an inch.

This new species I discovered in 1819 off Hastings, by trawling between that place and the coast of France. The epidermis is snowy white.

9. TURRITELLA NITIDA.

T. testâ nitidâ, glabrâ, politâ, albidâ; anfractibus novem, globosis, suturâ valdè distinctâ.

Habitat in mari Britannico, in littoribus Australibus Cornubiæ, Danmoniæ et Hiberniæ. Mus. nost. in Mus. Brit. Alt. $\frac{1}{8}$ et $\frac{1}{4}$ unc.

Shell shining, smooth, polished, whitish, with nine globose whorls, the suture very distinct. Height one-eighth to a quarter of an inch.

Inhabits the southern shores of Cornwall, Devon and Ireland.

It was first discovered by Miss Hutchings, of Bantry Bay, who gave me some very fine specimens. My cousin, C. Prideaux, Esq., found specimens in Plymouth Sound, and Mr. J. Cranch in Falmouth Harbour, by trawling.

10. TURRITELLA DANMONIENSIS.

T. testâ albidâ; anfractibus octo, transversim costatis; interstitiis lineis longitudinalibus elevatis sculptis; suturâ non valdè distinctâ.

Habitat in mari Danmoniensi profundo. Mus. Leach in Mus. Brit. Alt. $\frac{1}{6}$ unc.

Shell whitish. Whorls transversely ribbed. Interstices with longitudinal lines much elevated. Suture not very distinct. Height one-sixth of an inch.

Inhabits the deep sea on the coasts of Devonshire.

This new species was found by Mr. C. Prideaux in the Salcombe estuary; Mr. Cranch found it in Plymouth Sound, Torbay and Falmouth Bay.

Genus 71. TURBONELLA.

Turbo et Helix, *Auctorum.*

Testa altè turrita. *Sutura* profunda. *Apertura* peritremate perfecto instructa.

Animal incognitum.

Shell highly turrited. Sutures deep. Aperture furnished with a complete peritreme.

Animal unknown.

Synopsis Specierum.

1. *Hibernica.* Testâ albâ; anfractibus septem, omnibus, nisi basilari, qui est spiraliter elevato-lineatus, transversim costatis.
2. *Montaguana.* Testâ albâ; anfractibus sex, glaberrimis, transversim costatis.
3. *costata.* Testâ albâ; anfractibus quinque, tumidis, nitidis, transversim costatis.
4. *decussata.* Testâ albâ; anfractibus quinque, nitidis, decussatis elevato-striatis.
5. *striata.* Testâ brumneâ; anfractibus sex, transparentibus, nitidis, spiraliter elevato-lineatis.
6. *pallida.* Testâ pallidâ, albâ, glabrâ; anfractibus septem, glaberrimis.
7. *transparens.* Testâ transparente, pallido-albâ; anfractibus sex, glaberrimis.
8. *angusta.* Testâ angustâ, albidâ; anfractibus quinque, glabris, nitentibus.
9. *nivosa.* Testâ albâ; anfractibus sex, tumidis, glabris, nitentibus; suturâ valdè distinctâ.
10. *vitrea.* Testâ glaberrimâ, nitidâ, vitreâ; anfractibus quinque, tumidis; suturâ valdè distinctâ.

1. Turbonella Hibernica.

T. testâ albâ ; anfractibus septem, omnibus, nisi basilari, qui est spiraliter elevato-lineatus, transversim costatis.

Habitat in Hiberniæ Australis mari apud Dingle Bay, rarissimè. Alt. $\frac{1}{3}$ unc.

Shell white, with six whorls, all of which, except the basal, which is elevately lined spirally, are transversely ribbed. Height one-third of an inch.

Inhabits the sea, Dingle Bay, Ireland.

I discovered this new and elegant species in the above-mentioned Bay during a tour which I made on the southern coast of Ireland with L. W. Dillwyn, Esq. and Joseph Woods, Esq., architect.

2. Turbonella Montaguana.

T. testâ albâ ; anfractibus sex, glaberrimis, transversim costatis.

Habitat in mari Danmoniensi Australi, rarissimè. Mus. Montagu in Mus. Brit. Alt. $\frac{1}{8}$ unc.

Shell white, with six very smooth whorls, six transversely ribbed. Height one-eighth of an inch.

Inhabits the sea, Bigbury Bay, Devon.

This new and very beautiful species I discovered in the collection of shells belonging to Col. Montague, which has not been described in any of the works that I have examined. Mr. Gibbs informed me of the locality above mentioned.

3. Turbonella costata.

T. testâ albâ ; anfractibus quinque, tumidis, nitidis, transversim costatis.

Turbo costatus, *Walker, Test. Min. Rar.* f. 47 ; *Adams, Micros.* t. xiv. f. 20 ; *Trans. Linn. Soc.* iii. t. lxv. f. 13, 14 ; *Mont. Test. Brit.* ii. 311. t. x. f. 6 ; *Pult. Cat. Dorset.* t. xix. f. 5 ; *M. & R. Trans. Linn. Soc.* viii. 174 ; *Flem. Edinb. Encycl.* vii. 76 ; *Dill. Desc. Cat.* 783 ; *Turt. Conch. Dict.* 214.

Habitat in littoribus arenosis Hiberniæ Australis, et Cornubiæ, et Danmoniæ Australis, haud infrequens. Alt. $\frac{1}{8}$ unc.

Shell white, with five tumid, shining whorls, transversely ribbed. Height one-eighth of an inch.

Inhabits the sea, in sandy shores on the south of Ireland, and the southern coasts of Devon and Cornwall.

4. Turbonella decussata.

T. testâ albâ; anfractibus quinque, nitidis, transversim costatis; costis longitudinaliter impresso-striatis, striis transversim decussantibus sculptis.

Turbo decussatus, *Walker, Test. Min. Rar.* f. 52; *Mont. Test. Brit.* 322. t. xii. f. 4; *Flem. Edinb. Encycl.* vii. 72; *Dill. Desc. Cat.* 783; *Turt. Conch. Dict.* 210.

Habitat in mari Danmoniensi et Hiberniensi Australi, haud infrequens. Alt. $\frac{1}{8}$ unc.

Shell white, with five shining whorls transversely ribbed; the ribs longitudinal, with impressed striæ, sculptured with transversely decussating striæ. Height one-eighth of an inch.

5. Turbonella striata.

T. testâ brunneâ; anfractibus sex, transparentibus, nitidis, spiraliter elevato-lineatis.

Turbo striatus, *Walker, Test. Min. Rar.* f. 49; *Adams, Micros.* t. xiv. f. 22; *Trans. Linn. Soc.* iii. 66. t. xiii. f. 25–26; *Mont. Test. Brit.* ii. 312; *M. & R. Trans. Linn. Soc.* viii. 173; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 784, *Turt. Conch. Dict.* 213.

Habitat in mari arenoso profundo. Alt. $\frac{1}{8}$ unc.

Shell brown, with six transparent glossy whorls, with spirally elevated lines. Height one-eighth of an inch.

Inhabits the sea: Plymouth, Devon; Falmouth, Padstow, Cornwall, and the Isle of Sheppey.

6. Turbonella pallida.

T. testâ pallidâ, albâ, glabrâ; anfractibus septem, glaberrimis.

Turbo pallidus, *Mont. Test. Brit.* ii.—*Suppl.* t. xii. f. 4; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 783; *Turt. Conch. Dict.* 223.

Habitat in mari Danmoniensi et Hiberniensi Australi. Mus. Mont. et nost. in Mus. Brit. Alt. $\frac{1}{8}$ unc.

Shell pale-white, smooth, with six very smooth whorls. Height one-eighth of an inch.

Inhabits the sea, Dublin Bay, Ireland.

This species has sometimes a greenish hue, and is rarely covered with a roughish epidermis.

7. TURBONELLA TRANSPARENS.

T. testâ transparente, pallido-albâ; anfractibus sex, glaberrimis.

Habitat in mari Danmoniensi, in æstuario Salcombensi, rarissimè. Mus. nost. in Mus. Brit. Alt. $\frac{1}{8}$ unc.

Shell transparent, pale white, with six very smooth whorls. Height one-eighth of an inch.

Inhabits the sea, in Salcombe Bay, on the south-west of Devon, and is very rare. It was discovered by Mr. J. Cranch.

8. TURBONELLA ANGUSTA.

T. testâ angustâ, albidâ; anfractibus quinque, glabris, nitentibus.

Habitat in mari Danmoniensi, et æstuario Salcombensi, rarissimè. Mus. nost. in Mus. Brit.

Shell narrow, whitish, with five smooth shining whorls. Height one-eighth of an inch.

Inhabits the sea, in Salcombe Bay, on the southern coast of Devonshire, and is very rare.

This new and elegant species was also discovered by my indefatigable collector, Mr. J. Cranch.

9. TURBONELLA NIVOSA.

T. testâ albâ; anfractibus sex, tumidis, glabris, nitentibus; suturâ valdè distinctâ.

Turbo nivosus, *Mont. Test. Brit.* ii. 326; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 783; *Turt. Conch. Dict.* 202.

Habitat in mari Danmoniensi, in æstuario Salcombensi, rarissimè. Mus. Montagu in Mus. Brit. Alt. $\frac{3}{12}$ unc.

Shell white, with six smooth, glassy, tumid whorls; the suture very distinct. Height three-twelfths of an inch.

It is found very rarely in the Salcombe estuary on the southern coast of Devon. I have heard that it has also been taken in Dublin Bay.

10. TURBONELLA VITREA.

T. testâ glaberrimâ, nitidâ, vitreâ; anfractibus quinque, tumidis; suturâ valdè distinctâ.

Turbo vitreus, *Mont. Test. Brit.* ii.—*Suppl.* t. xii. f. 3; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 784; *Turt. Conch. Dict.* 202. sp. 23.

Helix vitrea, *M. & R. Trans. Linn. Soc.* viii. 213.

Habitat in mari Danmoniensi et Caledoniensi et Hiberniensi Australi rariùs. Mus. Montagu et nost. in Mus. Brit. Alt. $\frac{1}{8}$ unc.

Shell very smooth, shining and glassy; with five tumid whorls; the suture very distinct. Height one-eighth of an inch.

Inhabits the sea on the southern coasts of Devon, Scotland, and Ireland, and is somewhat rare. I found near Loch Ranza, in the Isle of Arran, living specimens; the epidermis had a very slight tint of yellow.

Genus 72. ALVANIA.

Turbo, *Auctorum.*

Testa altè et acutè turrita. *Sutura* profunda. *Umbilicus* apertus, perforatus. *Apertura* ferè rotundata, posticè ad dextram tenuiter angulata. Animal incognitum.

Shell highly and acutely turrited. Suture deep. Umbilicus open, perforated. Aperture almost round, the hinder part at the right side slightly angulated. Animal unknown.

Synopsis Specierum.

1. *striata.* Testâ sordidè albâ nitidissimâ; anfractibus sex, spiraliter striatis.
2. *glabra.* Testâ albâ, glabrâ; anfractibus quatuor, ultimis ad dextram lineâ sculptis.

3. *costata.* Testâ albâ, glabrâ; anfractibus sex, basilari non costato, quinque superioribus costatis.
4. *Cranchiana.* Testâ albâ, suturâ minùs profundâ; anfractibus quinque, glaberrimis.

1. ALVANIA STRIATA.

A. testâ sordidè albâ; anfractibus sex, spiraliter striatis, nitidissimis.

Turbo striatus, *Walk. Test. Min. Rar.* f. 49; *Adams, Micros.* t. xiv. f. 22; *Trans. Linn. Soc.* iii. 66. t. xiii. f. 25, 26; *Mont. Test. Brit.* ii. 312; *M. & R. Trans. Linn. Soc.* viii. 173; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 786; *Turt. Conch. Dict.* 213. sp. 50.

Habitat in mari Britannico in profundo. Alt. $\frac{2}{8}$ unc.

Shell dirty white, spirally striated, very shining and white. Height two-eighths of an inch.

This species was first discovered by Mr. Boys in Sheppey Island, and is very common on all the western coasts of Devon, Cornwall, Scotland, Wales, and Ireland.

2. ALVANIA GLABRA.

A. testâ albâ, glabrâ; anfractibus quatuor, ultimis ad dextram lineâ sculptis.

Habitat in mari Danmoniensi. Mus. nost. in Mus. Brit. Alt. $\frac{1}{8}$ unc.

Shell white, smooth. The four last whorls on the right side with a sculptured line. Height one-eighth of an inch.

Inhabits the sea, Plymouth Sound. Discovered by Mr. J. Cranch.

3. ALVANIA COSTATA.

A. testâ albâ, glabrâ; anfractibus sex, basilari non costato, quinque superioribus costatis.

β. testâ flavescente.

Turbo costatus, *Walk. Test. Min. Rar.* f. 47; *Adams, Micros.* t. xiv. f. 20; *Trans. Linn. Soc.* iii. 65. t. lxv. f. 13, 14; *Mont. Test. Brit.* 311.—*Suppl.* t. x. f. 6; *Pult. Cat. Dorset.*

t. xix. f. 5; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 785; *Turt. Conch. Dict.* 214. sp. 54.

Habitat in arenâ maris, et in thalassophytis. Mus. Montagu in Mus. Brit. Alt. $\frac{1}{8}$ et $\frac{1}{2}$ unc.

Shell white, smooth. The last whorl not ribbed; the five superior ones ribbed. Height one-eighth and a half the eighth of an inch.

Inhabits the sand of the sea, and in sea-plants.

Var. β. Shell yellowish; was discovered by Dr. Goodall in sand from Padstow, Cornwall.

4. Alvania Cranchiana.

A. testâ albâ, suturâ minùs profundâ; anfractibus quinque, glaberrimis.

Habitat in mari Danmoniensi et Cornubiensi Australi. Mus. nost. in Mus. Brit. Alt. $\frac{2}{8}$ unc.

Shell with the suture moderately deep, with five very smooth whorls. Height two-eighths of an inch.

Inhabits the sea, Devonshire and Cornish coasts. Discovered by Mr. John Cranch.

Genus 73. Zippora.

Testa altè turrita. *Apex* acutus. *Apertura* rotundata. *Peritrema* ad dextram, sinistram et anticam dilatatum. *Animal* incognitum.

Shell highly turrited. Apex acute. Aperture round. Peritreme dilated at the right, left and anterior sides. Animal unknown.

Zippora Drummondii.

Z. testâ latè costatâ; anfractu ultimo, lineis tenuibus longitudinalibus, sculpto.

Habitat in mari. Alt. $\frac{2}{8}$ unc.

Shell broadly ribbed. The last whorl sculptured with very long and narrow lines. Height two-eighths of an inch. Colour white. Shell translucent.

Inhabits the sea, near Cork, Ireland.

This very elegant shell was kindly communicated to me by James Drummond, Esq., Professor of Botany in the Botanical Garden, Cork.

STIRPS II.

Genus 74. TROCHUS.

Trochus *Auctorum.*

Testa conica, elata, super carinam. *Apertura* transversim depressa, marginibus disjunctis. *Columella* arcuata. *Peritrema* tenue. *Umbilicus* nullus. *Operculum* corneum.

Animal ore brevi. *Tentaculis* quatuor; *duobus superioribus* brevissimis, subconicis, apice oculigeris; *duobus inferioribus* longissimis, tenuissimis, acuminatis, filamentulis utrinquè instructis. *Pallio* super pedes lateralitèr utrinquè filamentis tribus longissimis acuminatis, filamentulis utrinquè instructis.

Ova pedunculata. *Pedunculum* ad animalis junioris tentaculorum latera locatum.

The shell is conic and elevated; the aperture is transversely depressed above its carina; its hinder margins are disjoined; its column arched; the peritreme thin; the umbilicus wanting; the operculum horny.

The animal has a short mouth; four tentacles; the two inferior ones very short, nearly conic, bear the eyes at their extremities; the two inferior ones are very long, very slender and acuminated, with very minute filaments on each side; the mantle above the feet on each side has three very long, acuminated filaments, with very minute filaments on each side.

The eggs are pedunculated; the peduncle is situated at the sides of the tentacles of the young animal.

Synopsis Specierum.

1. *papillosus.* Testâ tenui, fragili; anfractibus lineis, spiralibus, regularibus, tuberculatis, elevatis, sculptis.
2. *Cranchianus.* Testâ tenui; anfractibus lineis spiralibus, distantibus, elevatis, simplicibus sculptis.

3. *Clelandianus.* Testâ tenuitèr crassâ; anfractibus lineis spiralibus elevatis, inter suturas parvis aut obsoletis sculptis.
4. *ziziphinus.* Testâ crassâ; anfractibus lineis spiralibus irregulariter latis, glabris, elevatis, obliquè striolatis sculptis.
5. *irregularis.* Testâ crassâ; anfractibus lineis spiralibus, irregularibus, elevatis, non tuberculatis nisi in suturis sculptis.
6. *discrepans.* Testâ crassâ; anfractibus sulco mediano lato, et lineis impressis, angustissimis sculptis.

1. TROCHUS PAPILLOSUS.

T. testâ tenui, fragili; anfractibus lineis spiralibus, regularibus tuberculatis, elevatis sculptis.

Trochus papillosus, *Gualt. Test.* t. lxi. f. G. M; *Da Costa, Brit. Conch.* 38. t. iii. f. 5, 6; *Chem. Conch.* v. t. clxvi. f. 1597, 1598?; *Donov. Brit. Shells,* t. x. f. 3; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 787; *Turt. Conch. Dict.* 190. t. xvi. f. 5.

Trochus fragilis, *Pult. Cat. Dorset.* 44. t. xvi. f. 5.

Trochus tenuis, *Mont. Test. Brit.* 275. t. x. f. 3.

Habitat in mari Danmoniensi Australi profundo. Testæ color albus aut rosaceus, plùs aut minùs roseo variegatus. In exemplis hujus speciei nonnullis testæ lineæ non sunt tuberculatæ.

Shell thin, fragile, with the whorls sculptured with regular, spiral, tuberculated, elevated lines. Colour entirely white or rosy, more or less variegated with rose red. Height an inch and a half.

In some examples of this species, the lines of the shell are not tuberculated, and as every intermediate variation occurs, proves it to be but a variety of this species.

Inhabits the deep sea, on the southern coasts of Devon, and is by no means uncommon.

2. TROCHUS CRANCHIANUS.

T. testâ tenui; anfractibus lineis spiralibus, distantibus, elevatis, simplicibus sculptis.

Habitat in mari Danmoniensi et Cornubiensi haud infrequens. Testæ color rubescens. Mus. nost. in Mus. Brit. Alt. $1\frac{1}{8}$ unc.

Shell thin; the whorls sculptured with spiral, distant, simple, elevated lines. Colour rosy. Height an inch and an eighth.

Inhabits the British sea-coasts of Devon and Cornwall.

This new species was discovered by Mr. John Cranch, after whom I have named it, as a slight testimony due for his meritorious exertions in the cause of zoology, and of my gratitude for the eagerness of his pursuits while in my service, and of his zealous perseverance during the whole of the unfortunate voyage to the Congo, by which I lost a true and sincere friend and a faithful servant.

3. TROCHUS CLELANDIANUS.

T. testâ tenuitèr crassâ; anfractibus lineis spiralibus, elevatis, inter suturas parvis, aut obsoletis.

Habitat in mari Hibernico Australi. Testæ color rubescens. Mus. Dom. Dr. J. Goodall, Loscombe, et nost. in Mus. Brit.

Shell slightly thick, the elevated spiral lines on the whorls small or obsolete between the sutures. Height one inch.

Inhabits the sea on the south coast of Ireland.

Discovered by Mr. J. Cleland, who most kindly communicated to me through the hands of Miss Moreland this elegant new species.

4. TROCHUS ZIZIPHINUS.

T. testâ crassâ; anfractibus lineis spiralibus, inæqualitèr latis, glabris, elevatis, obliquè striolatis sculptis.

Trochus ziziphinus, *Lister Conch.* t. ccccccvi. f. 1; *Anim. Angl.* t. iii. f. 14; *Bonanni Recr.* t. iii. f. 95; *Favanne Conch.* t. xiii. f. T; *D'Argenv. Conch.* t. viii. f. 5; *Knorr. Vergn.* iii. t. xiv. f. 2; et vi. t. xxvii. f. 5; *Penn. Brit. Zool.* iv. 126. t. lxxx. f. 103; *Da Costa Brit. Conch.* 37. t. xii. f. 3, 4; *Chem. Conch.* v. t. clxvi. f. 1592, 1593; *Pult. Cat. Dorset.* 44. t. xvi. f. 3, 4; *Mont. Test. Brit.* 274; *M. & R. Trans. Linn. Soc.* viii. 155; *Flem. Edinb. Encycl.* vii. 75;

Dill. Desc. Cat. 186; *Turt. Conch. Dict.* 189, sp. 7; *Lam. Hist. Nat. des Anim. sans Vert.* vii. 23.

Habitat in maribus Europæ vulgatissimus. Alt. 2 unc.

Shell thick; the lines on the whorls spiral, unequally broad, smooth, and transversely striolated obliquely. Height two inches.

Animal with its foot, the superior part of the head and the region of the mouth yellow. Operculum reddish.

Very common in the British seas.

5. TROCHUS IRREGULARIS.

T. testâ crassâ; anfractibus lineis irregularibus, spiralibus, elevatis, non tuberculatis nisi in suturis sculptis.

Habitat in Danmoniæ et Cornubiæ mari profundo. Testæ color sordidè flavescens, sæpiùs roseo-rubro punctulatus aut maculatus. Mus. nost. in Mus. Brit.

Shell thick; the whorls sculptured with irregular, elevated, spiral lines, only tuberculated in the sutures. Height one inch. Colour of the shell dirty yellow, generally punctulated or spotted with rose red.

Inhabits the Plymouth Sound and Falmouth Bay. It has doubtless been confounded with *T. ziziphinus,* but having compared a complete series collected by Mr. J. Cranch, from the above-mentioned places, from the youngest specimens to the full-grown ones, I have been enabled satisfactorily to establish it as a new and distinct species.

6. TROCHUS DISCREPANS.

T. testâ crassâ; anfractibus sulco mediano lato et lineis impressis, angustissimis sculptis.

Trochus discrepans, *Brown, Mem. Wern. Soc.* ii. 519. t. xiv. f. 4.

Habitat in mari Hibernico rarissimè. Mus. D. Varley. Alt. 1 unc. Color olivaceo-testaceus; sulcus medianus fuscescens; anfractus transversim rubro-fasciati.

Shell thick; the whorl sculptured with one broad middle groove and very narrow impressed lines. Colour olivaceous-testaceous; the middle groove fuscous brown, the whorls transversely banded with red. Height one inch.

Inhabits the Irish seas; is very rare.

Genus 75. MONTAGUA.

Testa obtusè conica. *Apertura* integra. Peritrema incrassatum. *Umbilicus* in senioribus clausus, in junioribus apertus. *Operculum* tenue, corneum. *Animal* incognitum.

The shell is obtusely conic; its aperture entire; its peritreme thickened; the umbilicus is closed in adult shells, but open in young shells. The operculum is thin and horny. Animal unknown.

MONTAGUA DANMONIENSIS.

M. testâ anfractibus lineis spiralibus, tenuibus, glabris, elevatis, sculptis; interstitiis obliquè et tenuè elevato-lineatis.

Habitat in mari Danmoniensi et Cornubiensi. Testæ lineæ elevatæ, griseæ. Mus. Montagu et nost. in Mus. Brit. Alt. $\frac{2}{8}$ unc.

Shell with its whorls with narrow, smooth, elevated, spiral lines; the interstices with oblique and slightly elevated lines; all the elevated lines grey. Height two-eighths of an inch.

Inhabits the sea on the southern coasts of Devon and Cornwall.

This species was discovered by Mr. Montagu a short time before his death. Mr. Cranch has found it in the Kingsbridge estuary, the Plymouth Sound, and in Falmouth Harbour.

Genus 76. NEPTHEUSA.

Trochus *Auctorum.*

Testa moderatim elevata. *Apertura* rotundata. *Umbilicus* peritremate clausus. *Anfractus* subtumidi. *Animal* incognitum.

Shell moderately elevated. Aperture rounded. Umbilicus closed by the peritreme. Whorls subtumid. Animal unknown.

NEPTHEUSA CRASSA.

T. testâ pallidè viridescente, nigro, angulatè-undulato lineatâ.
Trochus crassus, *Petiver, Gaz.* t. 36. f. 11 ; *Pult. Cat. Dorset.* 44. t. xvi. f. 3, 7 ; *Donov. Brit. Shells,* t. lxxi. ; *Mont. Test. Brit.* 281 ; *M. & R. Trans. Linn. Soc.* viii. 154 ; *Flem. Edinb. Encycl.* vii. ; *Dill. Desc. Cat.* 786 ; *Turt. Conch. Dict.* 188. sp. 6.
Turbo lineatus, *Da Costa, Brit. Conch.* 100. t. vi. f. 7.
Habitat in mari Britannico ubiquè.

Shell pale greenish, with zigzag black lines. Height one inch and one-eighth.

Inhabits the sea. Very common on almost all the British coasts.

This shell varies in colour, and is sometimes pure white.

Genus 77. GIBBULA.

Trochus *Auctorum.*

Testa gibbosa, subconica. *Sutura* profunda. *Umbilicus* apertus. *Operculum* tenue, corneum. *Animal* incognitum.

The shell gibbous and subconical ; its suture deep ; its umbilicus open ; its operculum slender and horny. The animal of this genus is unknown.

Synopsis Specierum.

1. *tumida.* Testâ anfractibus tumidis, lineis spiralibus, elevatis, alternatim latis et angustis, præsertim in anfractu basilari.
2. *striata.* Testâ anfractibus moderatim tumidis, lineis elevatis, transversim et in nonnullis tenuissimè impressis.
3. *lineata.* Testâ suturâ angustissimâ ; anfractibus subdepressis, glabris, politis.
4. *magus.* Testâ suturâ profundâ ; anfractibus elevato-lineatis.

1. GIBBULA TUMIDA.

G. testâ anfractibus tumidis, lineis spiralibus, elevatis, alternatim latis et angustis, præsertim in anfractu basilari.
Trochus tumidus, *Pult. Cat. Dorset.* t. xvi. f. 9, 10 ; *Mont.*

Test. Brit. 280. t. x. f. 4; *M. & R. Trans. Linn. Soc.* viii. 153; *Flem. Edinb. Encycl.* vii. 76; *Dill. Desc. Cat.* 187; *Turt. Conch. Dict.* 187. sp. 4.

Color sordidus, nigro-purpureo transversim angulatè notatus.

β. testâ rufescente brunneo fasciatâ; fasciis interruptis.

Habitat in mari Britannico saxis testaceisque adhærens. Alt. $\frac{3}{8}$ unc.

Shell with tumid whorls, with spiral lines alternately broad and narrow, especially on the basal whorl. Colour of the shell dirty, marked with transverse zigzag black-purple spots. Height three-eighths of an inch.

Inhabits the British sea, adhering to rocks and shells.

2. Gibbula striata.

G. testâ anfractibus moderatim tumidis, lineis elevatis, transversim in nonnullis obliquè tenuissimè impressis.

Turbo striatus, *Walk. Test. Min. Rar.* f. 49; *Adams, Micros.* t. xiv. f. 22; *Trans. Linn. Soc.* iii. 66. t. xiii. f. 25, 26; *Mont. Test. Brit.* ii. 312; *M. & R. Trans. Linn. Soc.* 175; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 786; *Turt. Conch. Dict.* 213. sp. 50.

Habitat in mari Britannico, in thalassophytis. Alt. $\frac{6}{8}$ unc.

Shell with the whorls moderately tumid, the elevated lines in some transversely, in others very slightly impressed. Height six-eighths of an inch.

Inhabits the sea on seaweed, Fuci and Ulvæ.

3. Gibbula lineata.

G. testâ anfractibus subdepressis, glabris, politis. Suturâ angustissimâ.

Habitat in mari Cornubiensi, rarissimè. Mus. Dr. J. Goodall et nost. in Mus. Brit. Alt. $\frac{1}{2}$ unc.

Color viridis, flavo-viridescens aut albus; roseo aut violaceo obliquè lineatus.

Shell with whorls subdepressed. Suture very narrow. Colour green, yellow-green or white; obliquely lined with violet or rose-red. Height one-half of an inch.

Inhabits the Cornish sea, near Falmouth, and is very rare;

it has likewise been found amongst shell-sand from Padstow in the same county by my worthy friend Dr. Goodall, the Provost of Eton. It was first discovered by Mr. J. Cranch in deep water off Falmouth Harbour.

4. GIBBULA MAGUS.

G. testâ anfractibus elevato-lineatis. Suturâ profundâ.

Trochus magus, *Lister, Conch.* t. cccccclxi. f. 32 ; *Gualt. Test.* t. lxiv. f. *c.* ; *D'Argenv. Conch.* t. viii. f. 5. ; *Seba Mus.* iii. t. xli. f. 4, 6 ; *Knorr. Vergn.* vi. t. xxvii. f. 4 ; *Penn. Brit. Zool.* iv. 127. t. lxxx. f. 107 ; *Chem. Conch.* v. t. clxx. f. 1656–1659 : *Pult. Cat. Dorset.* 44. t. xvi. f. 1 ; *Donov. Brit. Shells,* t. viii. f. 1 ; *Mont. Test. Brit.* 283 ; *M. & R. Trans. Linn. Soc.* viii. 151 : *Flem. Edinb. Encycl.* vii. 75 ; *Dill. Desc. Cat.* 186.

Habitat in littoribus maris Europæi vulgatissima. Alt. 1½ unc.

Shell with its whorls with elevated lines ; its suture deep. Height one inch and a half.

Inhabits the shores of the European seas very commonly.

Genus 78. NATICA.

Natica *Lamarck.*
Nerita *Auctorum.*

Testa subglobosa, umbilicata. *Umbilicus* obliquè locatus, profundus. *Apertura* integra, semirotunda. *Peritrema* posticè tenuissimum, super umbilicum callosum, umbilicum coarctans, interdùm obtegens. *Operculum* corneum. *Animal ore* cylindrico, emarginato. *Tentaculis* duobus, elongatis, acuminatis, ad basin externè oculigeris. (*Oculis* sessilibus, rotundis.) *Pallio* valdè dilatato, testam ferè totam tegente, et pede lato, testâ breviore instructo.

The shell subglobose, umbilicated ; its umbilicus deep and sinuated obliquely ; its aperture entire, half-rounded ; its peritreme very thin behind, but hard above the umbilicus, which it contracts and sometimes covers entirely ; its *operculum* horny.

The mouth of the animal is cylindric and notched; the tentacles two, elongated, acuminated, bearing at their base externally the eyes, which are round and sessile; the mantle is very much dilated, so as to cover the shell almost entirely; the foot is broad, shorter than the shell.

Synopsis Specierum.

1. *glaucina.* Testâ glaucâ; anfractibus superioribus glauco intensè strigatis.
2. *Lamarckiana.* Testâ fuscescente, nigro-fusco aut nigricante-pallido, spiraliter maculatâ.
3. *Browniana.* Testâ semipellucidâ, cærulescente-albâ; anfractibus striolis transversis, curvatis sculptis.

1. NATICA GLAUCINA.

N. testâ glaucâ, anfractibus superioribus glauco intensè strigatis.

Nerita glaucina, *List. Anim. Ang.* t. iii. f. 19; *Conch.* ccccclxxxv. f. 43; *Petiv. Gaz.* t. xxxvi. f. 11; *Gualt. Test.* t. xlv. f. *b*; *Hill's Swam.* 183; *Favanne, Conch.* t. x. f. K, L; *Regenf. Conch.* 1. t. iii. f. 34; *Linn. It. Westgoth.* 169–199. t. v. f. 4; *Faun. Suec.* 2169; *Syst. Nat.* xii. 1232. 607; *Gmel. Syst. Nat.* 3588; *Penn. Brit. Zool.* iv. 140. t. lxxxi. f. 109; *Da Costa, Brit. Conch.* 98. t. vi. f. 1; *Chem. Conch.* v. t. clxxxv. f. 1852. 1. *ad* 8. *et* f. 1854. *a. ad d. et* f. 1855. *a. ad g.*; *Pult. Cat. Dorset.* 45. t. xvii. f. 1. *et* t. xix. f. 2, 3; *Donov. Brit. Shells,* t. xxxiii. f. 1, 2; *Mont. Test. Brit.* 301; *M. & R. Trans. Linn. Soc.* viii. 158; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 782; *Turt. Conch. Dict.* 124. sp. 2.

Animal. Pes, operculum, pallium et *tentacula* flavido-testacea.

Habitat in maris Europæi littoris arenosis vulgatissimè. Alt. 1½ unc.

Shell glaucous, with the upper whorls deeply striped with the same colour. Height one inch and a half.

The foot, operculum, mantle and tentacles yellow-testaceous.

Inhabits the sandy shore of the European seas, and is very common.

2. NATICA LAMARCKIANA.

N. testâ fuscescente, nigro-fusco, aut nigricante-pallido, spiraliter maculatâ.

Habitat in mari Cambriensi et Hibernico Australi. Mus. nost. in Mus. Brit.

Shell pale fuscous brown, spirally spotted with deep fuscous brown or pale black. Height five-eighths of an inch.

Inhabits the Welsh sea and the southern coasts of Ireland.

Some specimens of this species were given to me by Miss Hutchings, of Bantry. I afterwards found other specimens in Dingle Bay, and afterwards at the Mumbles near Swansea. I have named this elegant species in honour of my kind-hearted and excellent friend le Chevalier de Lamarck, who first separated this genus from Nerita.

3. NATICA BROWNIANA.

N. testâ semipellucidâ, cærulescente-albâ; anfractibus striolis, transversis, curvatis sculptis.

Nerita glabrissima, *Brown, Trans. Wern. Soc.* ii. 532. t. xxiv. f. 12.

Nerita sulcata, *Turt. Conch. Dict.* 124. t. xiv. f. 56, 57.

Habitat in mari Hibernico. Mus. Dr. Goodall et Capt. Brown. Alt. $\frac{4}{8}$ unc.

Shell semitransparent, bluish-white, the whorls sculptured with transverse, narrow, curved lines. Height four-eighths of an inch.

Inhabits the Irish sea.

I am indebted to Captain Brown for his kindness in permitting me to describe this species from a specimen which he afterwards gave to Dr. Goodall.

Genus 79. NERITA.

Nerita *Lamarck*.

Testa spiralis, gibba, subtùs plana. *Apertura* semiorbicularis. *Peritrema* planum.

Animal ore rostrato, moderatim elongato, cylindrico. *Ten-*

taculis conico-acuminatis, elongatis, ad apices obtusis, ad basin gradatim dilatatis, oculigeris. *Pede* ultra oculos anticè producto, obtusè rotundato. *Oculis* convexis, rotundatis.

Shell spiral, gibbous, flat beneath. Aperture semi-orbicular. Peritreme flat.

Animal: Mouth rostrated, moderately elongated, cylindrical. Tentacles elongated, conically acuminated, their points obtuse, their bases gradually dilated, and bearing the eyes. The foot produced beyond the eyes and obtusely rounded. Eyes convex and round.

NERITA LITTORALIS.

N. testâ glabrâ, colore valdè variabili.

Nerita littoralis, *Linn. Faun. Su.* 2195; *Syst. Nat.* 1253. 724; *Gmel. Syst. Nat.* 3677; *List. Anim. Angl.* t. iii. f. 11, 12, 13; *Conch.* 607. f. 39, 42; *Petiv. Gaz.* xxxiv. f. 4, 5, 6; *Gualt. Test.* t. x. f. L, L; *Da Costa, Brit. Conch.* 50. t. iii. f. 13, 14, 15, 16, and t. iii. f. 2, 3; *Chem. Conch.* v. t. clxxxv. f. 3; *Donov. Brit. Shells,* t. xx. f. 2; *Mont. Test. Brit.* ii. 467; *M. & R. Trans. Linn. Soc.* viii. 226; *Flem. Edinb. Encycl.* viii.; *Dill. Desc. Cat.* 186; *Turt. Conch. Dict.* 126. sp. 6.

Turbo neritoides, *Pult. Cat. Dorset.* 44. t. xvi. f. 13, 14, 15, 16, and t. xx. f. 1, 2.

Habitat in maris Europæi littoribus vulgatissimè. Alt. $\frac{3}{4}$ unc.

Testæ color brunneo-niger; sordidè flavidus; niger; viridescens; sordidè viridescens; olivaceus; aurantius; limonius limonio pallido maculatus; viridescens rufo-brunneo-fasciatus; pallidè aurantius; rufo-brunneus, aurantio pallido lineatus; fuscus aurantio sordido fasciatus; rufus pallido-tinctus et fusco aut aurantio fasciatus.

Animalis color. Pes, caput et tentacula pallidè flavescentia. *Operculum* testaceo intensè pictum.

Inhabits all the shores of the European seas abundantly.

Colour of the shell brown-black; dirty-yellowish; black; greenish; dirty greenish; olive; orange; lemon, spotted with

pale lemon; greenish, banded with red-brown; pale orange; reddish brown, lineated with pale orange; fuscous, banded with dirty orange; red, tinctured or tinted with pale red, and banded with fuscous or deep orange.

Colour of the animal. The foot, head and tentacula pale yellowish. The operculum painted with an intense testaceous colour. Height $\frac{3}{4}$ of an inch.

Genus 80. NERITINA.

Neritina *Lamarck*.
Theodoxis *De Montfort*.

Testa anfractu basilari maximo. *Apertura* ad dextram, mediam et sinistram semicircularis. Pars posterior et peritrema recta.

Animal. *Tentaculis* elongato-tereti-conicis, ad basin exteriorem oculigeris.

Shell with the basal whorl the largest. Aperture towards the right, the middle, and the left, semicircular. The hinder part with the peritreme straight.

Animal. Tentacles elongated, roundly conic, bearing the eyes exteriorly at their base.

NERITINA EUROPÆA.

N. testâ glabrâ, flavâ, limoniâ, purpureâ, nigrâ et violaceâ, variegatâ et maculatâ; peritremate albo.

Nerita fluviatilis, *List. Conch.* t. cxli. f. 38. et t. ccccccvii. f. 43, 44, *Pet. Gaz.* t. ci. f. 3; *Gualt. Test.* t. iv. f. L, L, infernè ad sinistram; *D'Argenv. Conch.* t. xxvii. f. 3; *Favanne, Conch.* t. lxi. f. 8, 3, 4, 17, 20; *Müll. Verm.* 194. 381; *Schröter, Flussconch.* t. v. f. 5, 6, 7, 8, 9 et 10; *Da Costa, Brit. Conch.* t. iii. f. 8; *Pult. Cat. Dorset.* 50. t. xvi. f. 17, 18; *Donov. Brit. Shells,* t. xvi. f. 2; *Mont. Test. Brit.* ii. 470; *M. & R. Trans. Linn. Soc.* viii. 225; *Flem. Edinb. Encycl.* vii.; *Lam. Hist. Nat. des Anim. sans Vert.* vi. partie ii. 188; *Dill. Desc. Cat.* 187; *Turt. Conch. Dict.* 127. sp. 7.

Habitat in fluviis Europæ, vulgatissimè. Alt. $\frac{3}{8}$ unc.

Animal pallidè cinerascens. *Tentacula* suprà violascentia. *Caput* supernè nigricans. *Corpus* punctis nonnullis violascente nigris confluentibus irroratum.

Shell smooth, yellow, spotted and variegated with lemon, purple, black and violet. Peritreme white. Height three-eighths of an inch.

Animal pale ash-coloured. Tentacles violet on each side above. Head blackish above. Body sprinkled with some violet and black confluent spots.

Inhabits the rivers of Europe, and is very common.

This is a genus containing a vast number of species, only one of which, as far as I have been enabled to learn from the examination of conchological works, inhabits Europe; and as all the species inhabit rivers, I have altered the name to *Europæa*.

Genus 81. Temina.

Nerita *Auctorum.*

Testa spirâ depressâ. *Anfractus* basilaris maximus. *Apertura* rotundata. *Peritrema* posticè crassum, triangulatim excavatum, ad dextram et sinistram gradatim angustatum.

Shell with its spire depressed. The basal whorl the largest. Aperture rounded. Peritreme thick behind, triangularly excavated; the right and left sides become gradually narrowed.

Synopsis Specierum.

1. *pallidula.* Testâ transversim ovali, tenui, semipellucidâ, spiraliter et obsoletè striatâ; anfractibus quatuor; epidermide pallidè fusco vel viridescente.
2. *Turtoniana.* Testâ oblongo-ovali, tenui, semipellucidâ, transversim striatâ, epidermide purpureâ.
3. *rufa.* Testâ subglobulari, tenui, semipellucidâ, glabrâ; anfractibus quatuor, primo maximo, tumido.
4. *variabilis.* Testâ tenui, semipellucidâ, glaberrimâ; anfractibus quinque, colore variantibus.

1. TEMINA PALLIDULA.

T. testâ transversim ovali, tenui, semipellucidâ, spiraliter et obsoletè striatâ; anfractibus quatuor; epidermide pallidè-fusco vel viridescente.

Nerita pallidula, *Da Costa, Brit. Conch.* 51. t. iv. f. 4, 5; *Donov. Brit. Shells,* t. xvi. f. 1; *Mont. Test. Brit.* 468; *Pult. Cat. Dorset.* t. xx. f. 4, 5; *M. & R. Trans. Linn. Soc.* viii. 226; *Flem. Edinb. Encycl.* vii. 74; *Dill. Desc. Cat.* 785.

Habitat in littoribus scopulosis in thalassophytis vulgatissimè.

Alt. ⅜ unc.

Var. β. striis fortissimis.

Animal viride vel flavido-hyalinum. *Os* rostriforme, albidum. *Tentacula* longissima, ad apices acutissima, ad basin externè dilatata, oculigera. *Oculi* minutissimi, convexi, atri. *Pes* ante *os* productus, albidus.

Shell transversely oval, thin, semitransparent, spirally and obsoletely striated. Whorls four. Epidermis pale brown or greenish. Height three-eighths of an inch.

Animal yellow, hyaline. Mouth rostriform, whitish. Tentacles very long, very acute at their points, at their base dilated and bearing the eyes. Eyes very minute, convex and black. Foot produced before the mouth, whitish.

Very common on rocky shores on seaweeds, Fuci or Ulvæ.

Var β. Striæ very strong.

2. TEMINA TURTONIANA.

T. testâ oblongo-ovali, tenui, semipellucidâ, transversim striatâ; epidermide purpureâ.

Turbo puteolus, *Turt. Conch. Dict.* 193. t. xxv. f. 85, 86.

Habitat in mari Danmoniensi, Cornubiensi et Hibernico Australi in thalassophytis. Mus. Dr. Goodall. Alt. ½ unc.

Var. β. Testâ anfractu basilari fasciis tribus aut quatuor purpurascentibus picto; unâ continuatâ ad apicem.

Shell oblongly oval, thin, semitransparent, transversely striated. Epidermis purple. Height half an inch.

Inhabits Dublin Bay, Ireland; Tor Bay, Devon; Falmouth and Penzance, Cornwall, on seaweeds, Fuci.

Var. β. Shell with the basal whorl with three or four purplish bands; one continued to the apex of the shell.

3. TEMINA RUFA.

T. testâ subglobulari, tenui, semipellucidâ glabrâ; anfractibus quatuor, primo maximo, tumido.

Nerita rufa, *Da Costa, Brit. Conch.* t. vii. f. 12; *Pult. Cat. Dorset.* t. xiv. f. 12.

Helix lacuna, *Mont. Test. Brit.* ii. 428. t. xiii. f. 6; *M. & R. Trans. Linn. Soc.* viii. 201; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 763.

Turbo lacuna, *Turt. Conch. Dict.* 193; t. xxv. f. 87, 88, 89.

Habitat in sinubus Dorsettensibus, Cornubiensibus et Cantiensibus. Alt. ½ unc.

Shell somewhat globular, thin, semitransparent, smooth. Whorls four; the first the largest, tumid. Height half an inch.

Colour yellowish-white, purplish, various tints of green, crimson or dull red; is sometimes banded.

Inhabits bays: Kent, Dorsetshire, Falmouth, and Penzance, Cornwall, Milton Sands.

4. TEMINA VARIABILIS.

T. testâ tenui, semipellucidâ, glaberrimâ; anfractibus quinque; epidermide colore variabili.

Habitat in thalassophytis, in mari Britannico. Mus. dom. Dr. Goodall; Rev. J. Bulwer; Loscombe, et nost. in Mus. Brit. Alt. ½ unc.

Shell thin, semitransparent, very smooth. Whorls five. Colour varying. Height half an inch.

Inhabits seaweeds, Mead-foot Rocks, Dawlish, Devon, Rev. J. Bulwer; Mount Edgecombe, Devon, Dr. Goodall and myself.

This new species was first discovered by my worthy friend the Rev. J. Bulwer, off Dawlish; it has since been found by my kind and worthy friend the Rev. Dr. Goodall, Provost of Eton, and at a place named the Bridge of Rocks between Mount Edgecombe and Saint Nicholas' Island, by myself. It varies very much in colour.

STIRPS III.

Genus 82. Turbo.

Turbo *Auctorum.*

Testa moderatim elevata. *Apertura* suborbicularis anticè, et ad sinistram semicircularis, posticè acuminata. *Peritrema* ad sinistram crassum anticè, ad dextram tenue. *Operculum* corneum.

Animal. *Ore* cylindrico, brevi. *Tentaculis* elongatis, acuminatis, apice obtusiusculis, ad basin externè dilatatis, oculigeris. *Oculis* sessilibus, rotundis. *Pede* testâ breviori, anticè et posticè obtuso.

The shell moderately elevated; the aperture suborbicular before, and at the left semicircular, acuminated behind; the peritreme on the left thick, on the right thin; the operculum horny.

The mouth of the animal is short and cylindric; the tentacles elongated, acuminated, rather obtuse at their extremities, dilated externally at their base, bearing the eyes, which are sessile and round. The foot is shorter than the shell, and obtuse before and behind.

Synopsis Specierum.

1. *littoralis.* Testâ crassâ, subovali; anfractibus sex (primo magno), spiralitèr striatis; epidermide fuscâ aut brunneo-castaneâ.
2. *sulcatus.* Testâ crassâ, suturâ profundâ; anfractibus quinque, impresso-sulcatis; epidermide flavâ, viridescente aut sordidè viridescente.
3. *rudis.* Testâ crassâ, suturâ profundâ; anfractibus quinque,

tumidis, spiralitèr et tenuitèr elevato-striatis, et transversim crenulatis; epidermide griseâ, viridescente, rubescente, fuscescente aut intensè brunneâ, nonnunquam fasciatâ.

4. *tenebrosus.* Testâ glabrâ, suturâ profundâ; anfractibus sex, tumidis; epidermide rugulosâ, griseâ aut ferrugineâ.
5. *petricola.* Testâ moderatim elevatâ, suturâ profundâ, crenulatâ; anfractibus quinque, planiusculis; epidermide profundè purpureo-brunneâ, nonnunquam lineis aut maculis albidis ornatâ.
6. *striatulus.* Testâ epidermide atro-nigrâ; anfractibus quinque, spiralitèr striatis, quatuor apicalibus, griseis; striis tribus, prope suturam, elevatis.

1. TURBO LITTOREUS.

T. testâ crassâ, subovali; anfractibus sex (primo magno), spiralitèr striatis; epidermide fuscâ aut brunneo-castaneâ.

Turbo littoreus, *List. Conch.* cccccIxxxiii. f. 43; *Anim. Angl.* t. iii. f. 9; *Petiv. Gaz.* t. xxxvi. f. 11; *Gualt. Test.* t. xlv. f. G.; *Favanne, Conch.* t. ix. f. K. 2; *Born. Mus.* t. xii. f. 13, 14; *Baster, Opus. Subsec.* t. xiv. f. 1; *Linn. It. W. Goth.* 169–199. t. v. f. 4; *Faun. Suec.* 2169; *Syst. Nat.* 1232. 607; *Gmel. Syst. Nat.* 3588; *Penn. Brit. Zool.* iv. 228. t. lxxxi. f. 106; *Da Costa, Brit. Conch.* 98. xc. t. vi. f. 1; *Chem. Conch.* v. t. clxxxix. f. 1852. 1 *ad* 8; f. 1854. *a. ad d.*–f. 1855. *a. ad g.*; *Pult. Cat. Dorset.* 45. t. xvii. f. 1.–t. xix. f. 2, 3; *Donov. Brit. Shells,* cxxxiii. f. 1, 2; *Mont. Test. Brit.* 301; *M. & R. Trans. Linn. Soc.* viii. 158; *Flem. Edinb. Encycl.* vii. 74; *Dill. Desc. Cat.* 789; *Turt. Conch. Dict.* 196. sp. 7; *Lam. Hist. Nat. des Anim. sans Vert.* vii. 47.

Animal. *Os* in rostellum cylindricum, obtusum, breve, productum. *Tentacula* nigrescente-annulata. *Pedis* latera viridescentia, lineis fractis, nigrescentibus. *Operculum* testaceo-flavidum.

Habitat in littoribus scopulosis Europæ vulgatissimè. Alt. ½ unc.

Color testæ rubescens aut griseo-flavus. Lineis fractis, nigris.

Shell strong, somewhat oval; the first whorl large, spirally striated; the epidermis fuscous or chestnut brown. Height one inch and a half.

Colour reddish or grey-yellow, with broken black lines.

The mouth of the animal produced into an obtuse cylindric rostrum; the tentacles annulated with blackish; the sides of the foot greenish, with broken black lines; the operculum testaceous yellow.

This species is very common on all the rocky shores of Europe. They are named periwinkles, and are eaten by poor people. It varies very much in colour.

2. TURBO SULCATUS. Tab. IX. fig. 6.

T. testâ crassâ, suturâ profundâ; anfractibus quinque, impresso-sulcatis; epidermide flavâ, viridescente aut sordidè viridescente.

Habitat in mari Cornubiensi, frequentèr. Mus. nost. in Mus. Brit. Alt. $\frac{6}{8}$ unc.

Shell thick, with the suture deep. Whorls five, impressly grooved. Epidermis blackish-yellow, greenish and dirty green. Height six-eighths of an inch.

Common in the Scilly Islands. Discovered by Mr. J. Cranch.

3. TURBO RUDIS.

T. testâ crassâ, suturâ profundâ, apertâ; anfractibus quinque, tumidis, spiralitèr et tenuitèr elevatis, striatis; epidermide griseâ, viridescente, rubescente, fuscescente aut intensè bruneâ, nonnunquam fasciatâ.

Turbo rudis, *Chem. Conch.* v. t. 185. f. 1853; *Maton's Western Counties,* i. 277; *Donov. Brit. Shells,* t. xxx. f. 3; *Pult. Cat. Dorset.* t. xviii. f. 6; *Mont. Test. Brit.* 304; *M. & R. Trans. Linn. Soc.* viii. 159; *Turt. Conch. Dict.* 197. sp. 9; *Flem. Edinb. Encycl.* vii.

Habitat in littoribus scopulosis Britanniæ sat frequens. Alt. 1 unc.

Shell thick, with a deep and open suture. Whorls five, tumid, spirally and slightly sculptured with elevated striæ; the epidermis grey, greenish, reddish, pale fuscous or dark brown, and is sometimes banded. Height one inch.

Animal yellowish. Tentacles of a dark yellow.

Inhabits the sea, Whitstable; north coast of Somersetshire; Plymouth; Devon; and in Dublin Bay.

4. TURBO TENEBROSUS.

T. testâ elevatâ, glabrâ; suturâ profundâ; anfractibus sex, tumidis; epidermide rugulosâ, griseâ aut ferrugineâ.

Turbo tenebrosus, *Mont. Test. Brit.* ii. 303.—*Suppl.* t. xx. f. 4; *Pult. Cat. Dorset.* t. xviii. f. 15; *M. & R. Trans. Linn. Soc.* viii. 160; *Turt. Conch. Dict.* 197; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 783.

Habitat in mari Danmoniensi, Cornubiensi, Cambriensi et Hibernico Australi sat frequens.

Shell elevated, smooth; suture deep, with six tumid whorls; the epidermis roughish, grey or ferruginous. Height half an inch.

5. TURBO PETRICOLA.

T. testâ moderatim elevatâ; suturâ profundâ, crenulatâ; anfractibus quinque, planiusculis; epidermide profundè purpureo-brunneâ, nonnunquam lineis aut maculis ornatâ.

Turbo petræus, *Mont. Test. Brit.* ii. 403; *Pult. Cat. Dorset.* t. xviii. f. 13; *M. & R. Trans. Linn. Soc.* viii. 160; *Turt. Conch. Dict.* 198; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 783.

Habitat in mari Britannico in scopulos ubiquè. Alt. $\frac{3}{8}$ unc.

Shell moderately elevated; suture deep; epidermis deep purple brown, sometimes ornamented with white lines or spots. Height three-eighths of an inch.

Inhabits all the shores of Great Britain on the rocks.

I have taken the liberty of changing the name of this species: *petræus* signifies, according to Pliny, any substance that grows upon a rock, such as alum, nitras, &c., which seems to me to be inapplicable to an animal that only lives on rocks.

6. TURBO STRIATULUS.

T. testâ epidermide atro-nigrâ; anfractibus quinque, spiralitèr striatis, quatuor apicalibus, griseis.

Turbo striatulus, *Linn. Syst. Nat.* 1238. No. 635; *Gmel. Syst. Nat.* 3604; *Da Costa, Brit. Conch.* 102. t. viii. f. 10; *Pult. Cat. Dorset.* t. xiv. f. 10; *Mont. Test. Brit.* ii. 306. t. x. f. 5; *M. & R. Trans. Linn. Soc.* viii. 172; *Turt. Conch. Dict.* 212; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 783.

Habitat in Danmoniæ et Cornubiæ Australis littoribus, rarissimè. Alt. $\frac{1}{8}$ unc.

Shell with its epidermis deep black. Whorls spirally striated. The four upper whorls grey. Height one-eighth of an inch.

Inhabits the western shores of Devon and Cornwall, but is very rare.

Genus 83. PERSEPHONA.

Turbo *Auctorum*.

Testa supra aperturam, conicè elevata. *Sutura* profunda. *Peritrema* perfectum.

Animal incognitum.

Shell above the aperture, conically elevated. Suture deep. Peritreme perfect.

Animal unknown.

1. PERSEPHONA RUFILABRIS.

P. testâ lucidâ, albâ, nitidâ; peritremate roseo; anfractibus flavo-punctatis transversim, costis latis distantibus sculptis, spiralitèr elevato-lineatis; interstitiis impresso-punctatis.

Habitat in mari Danmoniensi et Cornubiensi Australi. Mus. nost. in Mus. Brit. Alt. $\frac{2}{8}$ unc.

Shell lucid, white, shining. Peritreme rosy. Whorls punctured with yellow, transversely sculptured with broad and distant ribs. Interstices with impressed points. Height two-eighths of an inch.

Inhabits the sea-coasts of Devon and Cornwall.

2. PERSEPHONA SCOTICA.

P. testâ anfractibus transversim latè costatis; interstitiis elevato-lineatis.

Habitat in mari Scotico, in Freto Frith dicto. Color epidermidis nigro-purpureus, pallidè violascens aut pallidè fuscus, lucidus et nitidus. Mus. nost. in Mus. Brit. Alt. $\frac{2}{8}$ unc.

Shell with the whorls transversely ribbed. Interstices with elevated lines. Colour of the epidermis deep purple, pale violet, pale brown, lucid, shining. Height two-eighths of an inch.

Inhabits the Scottish sea.

I discovered this new species in the Frith of Forth near the Bass Rock, and afterwards in the Isle of Arran near Loch Ranza.

3. PERSEPHONA GOODALLANA.

P. testâ spirâ acutâ; anfractibus costis transversis, latis, distantibus sculptis.

Habitat in mari Dorsettensi prope Weymouth. Color sordidè testaceus, aut purpureo-brunneo-profundus. Apertura in omnibus purpurea. Mus. Dr. Goodall.

Shell with an acute spire. Ribs transverse, broad, and distant. Colour dirty testaceous or deep purple brown. Aperture in all specimens purple. Height two-eighths of an inch.

Inhabits the sea, Weymouth.

Discovered by my kind and worthy friend Dr. Goodall, the Provost of Eton.

4. PERSEPHONA CALATHISCUS.

P. testâ anfractibus, costis transversis, latis sculptis; interstitiis profundè impresso-punctatâ.

Turbo calathiscus, *Mont. Test. Brit. Suppl.* 132. t. xxx. f. 5; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 783; *Turt. Conch. Dict.* 211. sp. 44.

Habitat in mari Caledoniensi, Danmoniensi, Cornubiensi et

Cambriensi Australi rarissimè. Color epidermidis sordidè albus aut castaneo-brunneus. Alt. $\frac{1}{8}$ et $\frac{1}{4}$ unc.

Shell with the whorls with transverse and broad ribs. Interstices with deeply impressed dots. Height one and a quarter the eighth of an inch. Colour dirty white or chestnut brown.

Inhabits the sea, Scotland, the southern coasts of Devon and Cornwall, and Wales.

5. PERSEPHONA PUNCTATA.

P. testâ anfractibus, costis numerosis; lineis spiralibus, elevatis, rete efformantibus, sculptis.

Habitat in mari Cornubiensi rarissimè. Mus. nost. in Mus. Brit. Alt. $\frac{1}{8}$ unc.

Shell with the whorls with numerous ribs and spiral lines elevated and forming a net-like sculpture. Height one-eighth of an inch. Colour dirty white.

Inhabits the Cornish sea near Falmouth.

This new species was discovered off Falmouth in deep water by Mr. John Cranch.

6. PERSEPHONA ZETLANDICA.

P. testâ anfractibus fortè costatis; lineis spiralibus, elevatis, rete efformantibus; rete angulis, tuberculatis.

Turbo Zetlandicus Montagu, *Trans. Linn. Soc.* xi. 194. t. xiii. f. 3: *Flem. Edinb. Encycl.* vii. 73; *Dill. Desc. Cat.* 783; *Turt. Conch. Dict.* 211.

Habitat in Zetlandiæ mari. Color epidermidis niveus. Mus. Montagu in Mus. Brit. Alt. $\frac{1}{8}$ unc.

Shell with the whorls strongly ribbed and sculptured with elevated lines, forming a nut. The angles of the net tuberculated. Height one-eighth of an inch. Colour pure white.

Inhabits the Shetland seas.

This new species was discovered by Dr. Fleming at the Isle of Noss in Shetland.

7. PERSEPHONA HUTCHINSIANA.

P. testâ suturâ profundâ; anfractibus costis, transversis, elevatis, et lineis elevatis, spiralibus, rete efformantibus; rete angulis tuberculatis.

Habitat in mari Hibernico Australi. Mus. nost. in Mus. Brit. Alt. $\frac{2}{8}$ unc.

Shell with a deep suture, ribs transversely elevated and with spiral elevated lines, forming a net, with the angles tuberculated. Height two-eighths of an inch. Colour dirty white.

Inhabits the sea, Bantry Bay, Ireland.

This shell was communicated to me by Miss Hutchins, a most acute observer of seaweeds, Fuci.

8. PERSEPHONA BREVIS.

P. testâ humili, fortitèr spiralitèr elevato-lineatâ; interstitiis angustissimis, lineis elevatis sculptis.

Habitat in mari Danmoniensi Australi rarissimè. Mus. nost. in Mus. Brit. Alt. $\frac{2}{12}$ unc.

Shell low, strongly sculptured with spirally elevated lines, the interstices very narrow, sculptured with elevated lines. Height two-twelfths of an inch.

Inhabits the southern coast of Devonshire at Bantam near Kingsbridge.

My friend and cousin C. Prideaux, Esq., found three dead specimens at the above-mentioned place.

Genus 84. EPHERIA.

Testa sæpiùs moderatim elevata. *Anfractus* tumidi. *Sutura* profunda. *Apertura* rotundata posticè angulata. *Peritrema* extra partes sinistras, anticas et dextras reflexum. *Anfractus* basilaris maximus.

Animal incognitum.

Shell most generally moderately elevated. Whorls tumid. Suture deep. Aperture rounded, with an angle behind. Peritreme beyond the left, anterior and right parts turned outwards. Basal whorl the largest.

Animal unknown.

1. Epheria Bulweriana.

E. testâ glabrâ, pellucidâ, conicè elevatâ; anfractibus tribus apicalibus minutis.

Habitat in mari Danmoniensi et Hibernico Australi rarissimè. Mus. Dom. Dr. Goodall, Bulwer, Loscombe et nost. in Mus. Brit. Alt. $\frac{3}{8}$ unc. Color epidermidis corneus.

Shell smooth, transparent, conically elevated; the three apical whorls minute. Height three-eighths of an inch. Epidermis horn colour.

Inhabits the southern coasts of Devon and Ireland, and is very rare.

This new and highly interesting species was communicated by my worthy friend the Rev. J. Bulwer, who discovered it off Dawlish on the southern coast of Devon, and afterwards in the sea near Waterford.

2. Epheria vincta.

E. testâ altiùs elevatâ, glabrâ; anfractibus quinque; apice parvo at non acuto.

Turbo vinctus, *Mont. Test. Brit.* ii. 307.—*Suppl.* t. xx. f. 3; *M. & R. Trans. Linn. Soc.* viii. 167; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 787, *Turt. Conch. Dict.* 195. t. xxv. f. 90, 92.

Habitat in thalassophytis in mari Danmoniensi et Hantoniensi. Color epidermidis corneus; anfractibus omnibus fasciis duabus purpureis. Alt. $\frac{3}{8}$ unc.

Shell rather highly elevated, smooth, with five whorls. Apex small and not acute. The epidermis horn-coloured with two spiral purple bands on the whorls. Height three-eighths of an inch.

Inhabits seaweeds: Southampton, Hampshire; Salcombe, Devon.

3. Epheria quadrifasciata.

E. testâ subconicâ, forti, pellucidâ; anfractibus quinque; carinâ parvâ; aperturâ suborbiculari; peritremate anticè crasso; margine acutissimè tenui.

Cochlea parva, *Da Costa Brit. Conch.* 86?

Turbo quadrifasciatus, *Mont. Test. Brit.* ii. 328.—*Suppl.* t. xx. f. 7; *M. & R. Trans. Linn. Soc.* viii. 167; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 786; *Turt. Conch. Dict.* 194.

Habitat in thalassophytis, in mari Danmoniensi et Cornubiensi Australi sat frequens. Color epidermidis albidus, fasciis quatuor in anfractum basilarem, duobus in alteros. Alt. ½ unc.

Shell somewhat conic, strong, transparent. Whorls five. Aperture suborbicular. Peritreme anteriorly thick, margin very acutely slender. Colour white, with four fuscous bands on the basal, and two on all the other whorls. Height half an inch.

Inhabits seaweeds: Salcombe Bay, Bigbury Bay, Torbay, Devon; Falmouth, Cornwall.

Genus 85. ZACANTHUSA.

Testa anfractibus quinque inflatis. *Apertura* rotundata, posticè angulata ad dextram. *Sutura* profunda. *Apex* mammillatus.

Animal incognitum.

Shell with five inflated whorls. Aperture rounded, with an angle behind on the right side. Suture deep. Apex mammillated.

Animal unknown.

1. ZACANTHUSA RETICULATA.

Z. testâ opacâ; anfractibus sex transversim et spiralitèr elevato-lineatis, exindè reticulatis.

Turbo reticulatus, *Walk. Test. Min. Rar.* f. 32; *Adams, Trans. Linn. Soc.* iii. 66. t. xiii. f. 19, 20; *Mont. Test. Brit.* ii. 322.—*Suppl.* t. xxi. f. 1; *M. & R. Trans. Linn. Soc.* viii. 172; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 783; *Turt. Conch. Dict.* 212.

Habitat in mari Cantiaco et Hibernico haud infrequens. Color epidermidis sordidè albus aut fuscescens. Alt. $\frac{1}{10}$ unc.

Shell opake, with six whorls, with transverse and spiral elevated lines, forming a net-work. Colour of the epidermis dirty white or pale fuscous. Height one-tenth of an inch.

This species is not unfrequently found on the coasts of Kent and Ireland.

2. ZACANTHUSA SEMICOSTATA.

Z. testâ anfractibus quinque latè et tenuissimè transversim costatis; epidermide albâ.

Turbo semicostatus, *Mont. Test. Brit.* 326.—*Suppl.* t. xxi. f. 5; *M. & R. Trans. Linn. Soc.* viii. 162; *Flem. Edinb. Encycl.* vii. 76; *Dill. Desc. Cat.* 784; *Turt. Conch. Dict.* 201.

Habitat in mari Dannoniensi, Cornubiensi, et Hibernico Australi rarissimè. Alt. $\frac{1}{16}$ unc.

Shell white, its whorls very slightly transversely ribbed; epidermis white. Height one-sixteenth of an inch.

Inhabits the sea on the southern coasts of Devon and Cornwall; and Seafield, Ireland.

Genus 86. LAMARCKIA.

Turbo *Auctorum.*

Testa spirâ acutiusculâ. *Anfractus* superiores plani, basilalaris subglobosus. *Apertura* ovata. *Peritrema* crassum, reflexum.

Animal incognitum.

The shell with its spire rather acute; its superior whorls flat, the basal one subglobose; its aperture oval; its peritreme thick and reflected outwards.

Its animal is unknown.

LAMARCKIA COSTATA.

T. testâ albâ, nitidâ, pellucidâ, apice purpurascente; anfractibus quinque, obliquè costatis; costis longitudinalitèr sulcatis et transversim striolatis.

Buccinum costatum, *Da Costa, Brit. Conch.* 128. t. viii. f. 4.

Turbo costatus, *Pult. Cat. Dorset.* 43. t. xiv. f. 4; 45. t. xviii.

f. 16; *Donov. Brit. Shells,* t. xc.; *Mont. Test. Brit.* 265; *M. & R. Trans. Linn. Soc.* viii. 144; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 783; *Turt. Conch. Dict.* 214. sp. 54.

Helix labiosa, *Mont. Test. Brit.* 400. t. xiii. f. 7.

Turbo labiosus, *M. & R. Trans. Linn. Soc.* viii. 164; *Flem. Edinb. Encycl.* vii. 76; *Dill. Desc. Cat.* 785; *Turt. Conch. Dict.* 203.

Turbo marginatus, *Laskey, Mem. Wern. Soc.* i. t. viii. f. 13.

β. testâ altiore; anfractibus nullo modo costatis; peritremate tenuissimo.

Habitat in mari Europæo, β. in æstuariis. Alt. $\frac{1}{4}$ unc.

The shell white, shining, transparent; its apex purplish, with five whorls obliquely ribbed; the ribs longitudinally grooved and finely striated transversely. Height a quarter of an inch.

Inhabits the British seas. Var. β. in estuaries.

Genus 87. MEDORIA.

Testa crassa, conica, anfractibus quinque. *Sutura* profunda. *Apertura* rotundata. *Peritrema* perfectum, crassum, dilatatum.

Animal incognitum.

Shell thick, conical, with five whorls. Suture deep. Aperture rounded. Peritreme perfect, thick and dilated.

Animal unknown.

1. MEDORIA WALKERI.

M. testâ opacâ, flavido-albâ, nonnunquam flavo-brunneâ, crenulatâ.

Turbo crassior, *Walker, Test. Min. Rar.* f. 34; *Mont. Test. Brit.* 309.—*Suppl.* t. xx. f. 1; *M. & R. Trans. Linn. Soc.* viii. 159; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 781; *Turt. Conch. Dict.* 198. sp. 11.

Habitat in mari Britannico.

Shell opake, yellowish-white, sometimes yellowish-brown, crenulated. Height half an inch.

Inhabits the British sea; Sandwich, Kent; Bideford and Torbay, Devon; Dublin Bay.

2. MEDORIA DANMONIENSIS.

M. testâ glaberrimâ, moderatim elevatâ; epidermide brunneâ.

Habitat in mari Danmoniensi Australi rarissimè. Mus. nost. in Mus. Brit.

Shell very smooth, moderately elevated; epidermis brown. Height three-eighths of an inch.

Inhabits the sea on the southern coasts of Devon.

This very rare species was discovered by Mr. J. Cranch, and has been found likewise by A. Prideaux, Esq. and by Mr. J. Gibbs in the Kingsbridge Estuary.

3. MEDORIA TENEBROSA.

M. testâ glabrâ, mediocritèr elevatâ; epidermide nigrâ aut brunneâ.

Turbo tenebrosus, *Mont. Test. Brit.* 303. t. xx. f. 4; *Pult. Cat. Dorset.* t. xviii. f. 15; *Flem. Edinb. Encycl.* vii. 76; *Dill. Desc. Cat.* 782; *Turt. Conch. Dict.* 197. t. x. f. 36, 37.

Habitat in paludibus salinis Angliæ et Hiberniæ rarissimè.

Shell smooth, moderately elevated; epidermis black or brown. Height two-eighths of an inch.

Inhabits salt-marshes in England and Ireland.

Genus 88. MARGARITES.

Testa planiuscula, apice paululùm producto. *Apertura* rotunda. *Umbilicus* angustus.

Animal incognitum.

Shell rather flat, its apex a little produced; its aperture round; its umbilicus narrow.

Animal unknown.

MARGARITES DIAPHANA.

M. testâ albâ, æneo-tinctâ; anfractibus quinque, basilari fusco unifasciato.

Helix margarita, *Mont. Test. Brit. Suppl.* 143; *Laskey, Mem. Wern. Soc.* i. 408. t. viii. f. 5; *Flem. Edinb. Encycl.* vii. 81; *Dill. Desc. Cat.* 782.

Turbo margarites, *Turt. Conch. Dict.* 229.

Habitat in mari Danmoniensi Australi et in mari Caledoniensi Boreali. Alt. $\frac{1}{8}$ unc.

The shell white, tinted with bronze, with five whorls, the basal one with a fuscous band. Height one-eighth of an inch.

Inhabits the sea on the southern coasts of Devon and in the northern Scottish sea. Discovered by Captain Laskey.

Genus 89. ZEANOË.

Turbo et Helix *Auctorum.*

Testa spiralitèr elevata, apice mammillata. *Sutura* profunda. *Apertura* ovata. *Peritrema* crassum, perfectum, posticè rectum.

Animal incognitum.

The shell spirally elevated; its apex mammillated; its suture deep; its aperture oval; its peritreme thick, perfect, and straight behind.

Animal unknown.

ZEANOË NITIDA.

Z. testâ albidâ aut corneâ, lævi, nitidâ, tenui, pellucidâ; anfractibus tribus, perfectis, transversim costatis.

Turbo nitidus, *Adams, Trans. Linn. Soc.* t. iii. 65; *Turt. Linn.* iv. 487.

Helix truncatula, *Gmel. Syst. Nat.* 3659.

Turbo truncatus, *Mont. Test. Brit.* 300. t. x. f. 7.

Habitat in mari Dorsettensi et Danmoniensi haud infrequens. Mus. Montagu in Mus. Brit. Alt. $\frac{1}{8}$ vel $\frac{1}{16}$ unc.

Shell whitish or horny, smooth, shining, thin, transparent, with three perfect whorls transversely ribbed. Height one-eighth or one-sixteenth of an inch.

Inhabits the shores of Dorsetshire and Devon, and is not very rare.

Genus 90. GLAUCOTHOË.

Turbo *Auctorum.*

Testa spiralitèr et altè elevata. *Apex* mammillatus. *Sutura* profunda. *Apertura* ovata, ad dextram subacuminata. *Peritrema* anticè et lateralitèr crassum, posticè nullum.

Animal incognitum.

The shell spirally and highly elevated; its apex mammillated; its suture deep; its aperture oval, somewhat acuminated at the left; its peritreme before and laterally thick, behind wanting.

Animal unknown.

GLAUCOTHOË MONTAGUANA.

G. testâ flavescente, lævi, nitidâ, pellucidâ; anfractibus septem, inflatis, longitudinalitèr striolatis; suturâ valdè distinctâ.

Turbo subtruncatus, *Mont. Test. Brit.* 300. t. x. f. 1; *M. & R. Trans. Linn. Soc.* viii. 178; *Flem. Edinb. Encycl.* vii. 76; *Dill. Desc. Cat.* 783; *Turt. Conch. Dict.* 218.

Habitat in mari Danmoniæ et Cornubiæ, mari profundo haud infrequens, in Caledoniæ mari rarissimè. Mus. Montagu in Mus. Brit. Alt. $\frac{1}{5}$ unc.

Shell yellowish, smooth, shining, transparent, with seven inflated whorls striolated longitudinally; its suture very distinct. Height one-fifth of an inch.

Inhabits the deep sea on the coasts of Devon and Cornwall, not unfrequently, but is very rare in the Scottish seas.

Genus 91. EUDORA.

Turbo *Auctorum.*

Testa crassa, elevata. *Apex* acutus. *Sutura* profunda. *Apertura* rotunda. *Peritrema* nullum. *Operculum* calcareum.

Animal incognitum.

The shell thick, elevated; its apex acute; its suture deep; its aperture round; no peritreme; its operculum calcareous.

Animal unknown.

EUDORA VARIANS.

E. testâ anfractibus quinque inflatis, glabris, nitidis, coloribus plurimis pictis et variegatis.

Turbo Pullus, *Linn. Syst. Nat.* 1233. no. 610; *Gmel. Syst. Nat.* 3589; *Borlase Cornw.* 276; *Pult. Cat. Dorset.* 45. t. xiv. f. 1–3; *Donov. Brit. Shells,* t. ii. f. 2–6; *Mont. Test. Brit.* 319; *M. & R. Trans. Linn. Soc.* viii. 162; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 782; *Turt. Conch. Dict.* 201. t. xii. f. 48, 49.

Turbo pictus, *Da Costa, Brit. Conch.* 103. t. viii. f. 3.

Habitat in mari Europæo profundo arenoso vulgatissimè. Alt. $\frac{3}{8}$ unc.

Shell with five, inflated, smooth, shining whorls, ornamented with various colours. Height three-eighths of an inch.

Inhabits the European seas on sandy bottoms, is very common, and so variable that it is almost impossible to find two specimens exactly alike in colour.

Genus 92. BALCIS.

Helix et Turbo *Auctorum.*

Testa crassa, altè conico-turrita. *Apertura* subovata ad dextram acutè angulata. *Peritrema* anticè crassiusculum, posticè utrinquè gradatim acuminatum et reflexum. *Sutura* tenuissima.

Animal incognitum.

The shell thick, highly conically turrited; its aperture somewhat oval at the left side, acutely angulated; its peritreme anteriorly thick, very gradually acuminated on each side posteriorly where it is reflexed; its suture very slight.

Animal unknown.

1. BALCIS LÆVIS.

B. testâ anfractibus tredecim, albissimis, nitidissimis, opacis, glabris.

Turbo lævis, *Penn. Brit. Zool.* iv. 130. t. lxxxix. Figura superior; *Turt. Linn.* iv. 497.

Helix polita, *Pult. Cat. Dorset*, 49. t. xix. f. 15; *Mont. Test. Brit.* 398; *M. & R. Trans. Linn. Soc.* viii. 210.

Turbo politus, *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 781; *Turt. Conch. Dict.* 217.

Strombiformis albus, *Da Costa, Brit. Conch.* 116.

Turbo albus, *Donov. Brit. Shells*, t. clxxvii.

Habitat in mari Danmoniensi et Cornubiensi. Alt. $\frac{7}{8}$ unc.

Shell with thirteen, very white, very shining, smooth, opaque whorls. Height seven-eighths of an inch.

Inhabits the sea on the coasts of Devon and Cornwall.

2. BALCIS TESTACEA.

B. testâ anfractibus novem, testaceis, angustissimis, glaberrimis, nitidis.

Habitat in mari Danmoniensi Occidentali rarissimè. Mus. nost. in Mus. Brit. Alt. $\frac{5}{8}$ unc.

Shell with nine testaceous, very narrow, very smooth, shining whorls. Height five-eighths of an inch.

Inhabits the western coasts of Devon, but is extremely rare: it was discovered by Mr. J. Cranch in the Plymouth Sound in deep water by an oyster-dredge; he found five living specimens in one day, but although he afterwards tried near the same place he could never find any more of them.

3. BALCIS ARCUATA.

B. testâ arcuatâ; anfractibus duodecim, ferrugineis, nitidissimis, opacis, glaberrimis.

Habitat in mari Cornubiensi et Danmoniensi Australi. Mus. Montagu et nost. in Mus. Brit. Alt. $\frac{2}{8}$ unc.

Shell curved, with twelve ferruginous, very shining, very smooth, opaque whorls. Height two-eighths of an inch.

Inhabits the southern coasts of Devon and Cornwall.

This species is equally common with *B. lævis*, and was supposed by Montague to be the young of that species.

ORDER V. ANTROBRANCHIA.

Cyclostoma *Lamarck, Cuvier,* &c.

Branchiæ reticulatæ, non elevatæ, ad cavitatem sacciformem adhærentes. *Corpus* spirale. *Testa* spiralis. *Operculum* testaceum. *Os* rostriforme. *Tentacula* duo, ad basin externè dilatata, oculigera. *Sexus* distinctus, oviparus.

The branchiæ are reticulated, not elevated, adhering to a sack-shaped cavity. The body spiral; the shell spiral; the operculum testaceous; the mouth rostriform; tentacles two; the base externally dilated, bearing the eyes. The sexes distinct, oviparous.

This Order contains several genera, which have been arranged together under the general denomination of *Cyclostoma.* One genus only occurs in Great Britain, which contains three European species. All the genera inhabit dry sandy situations; the greater number living in tropical countries.

Genus 93. CYCLOSTOMA.

Cyclostoma *Lamarck, Cuvier,* &c.
Turbo *Auctorum.*

Testa spiralis, apice obtusiuscula. *Apertura* circularis, libera, ad dextram acuminata. *Peritrema* nullum. *Umbilicus* centralis, perforatus. *Operculum* testaceum, spirale. *Sutura* profunda.

Animal: *os* rostriforme. *Rostrum* annulatum. *Tentacula* cylindrica, ad basin externè abruptè dilatata, oculigera. *Oculi* prominuli.

Shell spiral, its apex rather obtuse. Aperture circular and free, acuminated at the right side. Peritreme none. Umbilicus central, perforate. Operculum shelly, spiral. Suture deep.

Animal. Mouth rostriform. Rostrum annulated. Tentacles cylindric, externally at their base abruptly dilated, bearing the eyes. Eyes prominent.

CYCLOSTOMA ELEGANS.

C. testâ ovato-conicâ. Anfractibus ventricosis, longitudinaliter et transversim elevato-striatis, rete efformantibus, striis transversis, minoribus sculptis.

Turbo elegans, *Lister, Conch.* xxvii. f. 25; *Anim. Ang.* t. ii. f. 5; *Act. Ang.* 105. f. 2; *Mont. Test. Brit.* 342.—*Supp.* t. xxii. f. 7; *M. & R. Trans. Linn. Soc.* viii. 167; *Flem. Edinb. Encycl.* vii. 72; *Dill. Desc. Cat.* 781; *Turt. Conch. Dict.* 206.

Nerita elegans, *Müll. Verm.* 181. no. 368.

Turbo tumidus, *Penn. Brit. Zool.* 128. t. lxxxii. f. 110.

Turbo striatus, *Da Costa, Brit. Conch.* 86. t. v. f. 9.

Cyclostoma elegans, *Lam. Hist. Nat. des Anim. sans Vert.* vi. 148.

Animal cinereum, lateribus subverrucosis, cæruleo-nigricantibus. *Tentacula* griseo-cinerea, apice subpellucida. *Oculi* atri. *Dorsum* transversim annulatum.

Habitat in cretaceis et sabulosis vulgaris. Alt. $\frac{5}{8}$ unc.

Shell conically oval. Whorls ventricose, longitudinally and transversely striated with elevated lines, forming a net, the transverse striæ smallest. Height five-eighths of an inch.

Animal ash-colour, with the sides subverrucose, blue-black. Tentacles greyish ash-colour, somewhat pellucid at their apices. Eyes black. Back annulated transversely.

Inhabits chalky and sandy situations.

ORDER VI. SPARTÆBRANCHIA.

Valvata et Paludina *Auctorum.*

Branchiæ fasciculis filamentorum ad cavitatem branchialem adhærentibus. *Corpus* conicum. *Testa* conica. *Os* rostriforme, mandibulis duabus instructum. *Tentacula* duo, ad basin externè dilatata, oculigera. *Sexus* distinctus, ovo-viviparus.

The branchiæ are composed of bundles of filaments adhering

to the branchial cavity. The body conic; the shell conic; the mouth rostriform, furnished with two mandibles; two tentacles dilated at their base externally bearing the eyes. The sexes are distinct, ovo-viviparous.

All the animals of this Order inhabit fresh waters, in ponds, rivers, or marshes. Of their economy nothing is known.

Synopsis Generum.

Testa spirâ depressa, infrà apertissime umbilicata	94. Valvata.
Testa elevata. Sutura profunda. Apertura rotunda	95. Paludina.
Testa conicè elevata. Spira acuta. Sutura profunda	96. Bithynia.

All the animals of this Order are ovo-viviparous, and have two tentacles more or less contractile; the right tentacle is thicker than the other, and is pierced at its extremity for the exit of the verga. Between the tentacles is situated a fleshy short cylindric rostrum.

The aperture leading to the branchial cavity is situated on the anterior margin of the mantle; the branchiæ, rectum, the canal from the mucous gland and the matrix of the female are situated on the right side. The matrix terminates below in a fleshy hollow tubercle.

The tongue is small and spinous; the salivary glands are very large; the œsophagus rather long and straight; the stomach is very large, and is divided into many different cavities; the intestine passes upwards near to the fleshy mass of the mouth, it turns backwards behind the heart, and makes one turn before it forms the rectum.

The branchiæ are composed of three ranges of conic filaments arranged very regularly.

The brain is formed of two lobes connected by one slender nervous fibre; the branchial nerve passes under the œsophagus and joins the right lobe; the other nerves are nearly similar to those of the families *Purpuridæ* and *Turbinidæ*.

The verga is cylindric, very thick, surrounded with annular fleshy fibres, and, as I have mentioned above, passes through an opening in the right tentacle. The testicle occupies that space of the spiral portion which contains the matrix and ovary in the female.

In both sexes there is a projecting fleshy line below the right tentacle, which passes under it to the bottom of the branchial cavity, is again continued and terminates in an aperture at the bottom of the matrix.

Genus 94. VALVATA.

Valvata, *Müller*, *Draparnaud*, *Cuvier*.

Testa spirâ depressa, infrà apertissime umbilicata.

Animal : os tubulosum, supernè quasi articulatum. *Tentacula* setacea, apice obtusa, supernè ad basin oculigera. *Branchiæ* plumosæ, retractiles. *Pes* anticè bilobatus ; lobi acuminati. *Processus* carneus ad corporis dextrum setaceus, ad apicem obtusus, tentaculiformis.

Shell with depressed spire, beneath very widely umbilicated.

Animal. Mouth tubulose, upper aspect as if articulated. Tentacles setaceous, their extremities obtuse, bearing the eyes on the upper aspect of their bases. Branchiæ plumose, retractile. Foot anteriorly bilobate, lobes acuminate. A fleshy process arises from the right side of the body, of a setaceous form, with an obtuse extremity resembling a tentacle.

1. VALVATA MÜLLERI.

V. testâ spirâ subelevatâ ; anfractibus quatuor, planatis, transversim striatis ; aperturâ subreflexâ ; umbilico lato.

Valvata cristata, *Müll. Verm. Hist.* ii. 198 ; *Cuv. Règ. Anim.* ii. 421.

Helix cristatus, *Mont. Test. Brit.* ii. 460. vig. 1. f. 7, 8.

Turbo cristatus, *M. & R. Trans. Linn. Soc.* viii. 169 ; *Dill. Desc. Cat.* 883 ; *Turt. Conch. Dict.* 227.

Valvata Planorbis, *Drap. Hist. des Moll.* 41. t. i. f. 34, 35.

Planorbis cristatus, *Flem. Edinb. Encycl.* vii. 69.

Habitat in paludibus vulgaris. Diam. $\frac{3}{16}$ unc.

Shell with the spire slightly elevated. Whorls four, flattened and transversely striated; aperture somewhat reflexed; umbilicus wide. Diameter three-sixteenths of an inch.

Colour horny, sometimes tinged with greenish or greenish-testaceous.

Animal black; tentacles, lateral appendage and lobes of the foot pale bluish-black, terminating with hyaline; eyes very black.

This species is common in ponds and ditches round London and Bristol. I have observed it in some of the ponds near Edinburgh. It appears to be a generally diffused species.

2. VALVATA FONTINALIS.

V. testâ spirâ elevatâ; anfractibus quinque, teretibus, transversim striatis; suturâ angustâ, profundâ; umbilico angusto.

Turbo fontinalis, *Mont. Test. Brit.* 348. t. xxii. f. 4; *M. & R. Trans. Linn. Soc.* viii. 160; *Turt. Conch. Dict.* 207.

Cyclostoma obtusum, *Drap. Hist. des Moll.* 33. t. i. f. 14.

Lymnæa fontinalis, *Flem. Edinb. Encycl.* vii. 78?

Habitat in aquis lentè fluentibus et in fontibus. Diam. $\frac{1}{4}$ unc.

Shell with the spire elevated; whorls five, rounded, transversely striated; suture narrow and deep; umbilicus narrow. Diameter one-fourth of an inch.

Colour pellucid-horny, often tinted with greenish.

Animal pale cinereous; sides of the tentacles, upper part and sides of the head and neck, upper aspect of the anterior lobes of the foot freckled with brownish, and sometimes with whitish; middle or centre of the tentacles often whitish or purely hyaline; eyes very black.

Inhabits slowly flowing waters and fountains. Is by no means uncommon round London, Bristol and Exeter. It is found also in Duddingstone Loch near Edinburgh.

Genus 95. PALUDINA.

Paludina, *Lamarck, Cuvier, Say.*
Vivipara, *De Montfort.*

Testa elevata. *Sutura* profunda. *Apertura* rotundata.

Animal : os rostriforme. *Tentacula* compressa, ad apices acuminata, ad basin externè abruptè dilatata, oculigera. *Operculum* corneum.

Shell elevated. Suture deep. Aperture round.

Animal. Mouth rostriform. Tentacles compressed, acuminated at their extremities, at their bases externally abruptly dilated, and bearing the eyes. Operculum horny.

The young animals swim in the water in the same manner as the *Limnadæ*.

1. Paludina vulgaris.

P. testâ spirâ elevatâ ; anfractibus ventricosis, transversim striatis, et longitudinaliter fusco-fasciatis ; suturâ mediocri.

Helix vivipara, *List. Anim. Ang.* t. ii. f. 18 ; *Conch.* t. cxxvi. f. 26 ; *Act. Angl.* t. cv. f. 17 ; *Donov. Brit. Shells*, t. lxxxvii. ; *Mont. Test. Brit.* 386 ; *M. & R. Trans. Linn. Soc.* viii. 205 ; *Dill. Desc. Cat.* 883 ; *Turt. Conch. Dict.* 59.

Nerita vivipara, *Müll. Verm.* ii. 182. no. 370.

Cochlea vivipara, *Da Costa, Brit. Conch.* lxxi. t. vi. f. 2.

Cyclostoma viviparum, *Drap. Hist. des Moll. Terrest. et Fluv.* 34. t. i. f. 16.

Vivipara fluviorum, *De Montfort*, 246.

Limnæa vivipara, *Flem. Edinb. Encycl.* vii. 77.

Helix compactilis, *Pult. Cat. Dorset.* 48. Testa junior.

Paludina vivipara, *Lam. Hist. Nat. des Anim. sans Vert.* vi. 173.

Animal nigrum. *Caput* et *tentacula* maculis parvis, distinctis notata. *Pes* et *latera* punctulis confluentibus irroratis.

Habitat in fluviis lentè fluentibus, stagnis et paludibus, vulgaris.

Shell with the spire elevated ; whorls ventricose, transversely striated and longitudinally banded with fuscous. Suture moderate.

Animal black ; head and tentacles marked with distinct, small spots ; foot and sides sprinkled with confluent little points.

Inhabits rivers flowing gently, ponds and marshes. Found in abundance in the Thames near Lambeth Church, and likewise near Battersea Fields at low tide.

2. PALUDINA ACHATINA.

P. testâ spirâ depressiusculâ; anfractibus ventricosis, transversim striatis, et longitudinaliter fusco-fasciatis.

Nerita fasciata, *Müll. Verm.* 182. no. 369.

Cyclostoma achatina, *Drap. Hist. des Moll. Terrest. et Fluv.* 36. t. i. f. 18; *Lam. Hist. Nat. des Anim. sans Vert.* vi. 174.

Paludina achatina, *Brug. Encycl. Méth.* t. cccclviii. f. 1. *a, b.*

Helix fasciata, *Gmel. Syst. Nat.* 3646. no. 106; *Gualt. Test.* t. v. f. M.; *Seba, Mus.* iii. t. xxxix. f. 33, 34.

Animal, corpore nigricante, cinereo-flavo sparsum; punctis confluentibus. *Tentacula* aterrima fulvo-punctata. *Oculi* atri.

Habitat in fluvio Camo vulgatissima.

Shell with the spire depressed; whorls ventricose, transversely striated, and longitudinally banded with fuscous-brown.

Animal: body blackish, sprinkled with greyish yellow spots; the spots confluent. Tentacles deep black, spotted with fulvous. Eyes black.

Inhabits the river Cam.

This species was first discovered as a British species by my friend, J. S. Henslow, Esq., Professor of Geology in the University of Cambridge: it is found plentifully in the river Cam.

Genus 96. BITHYNIA.

Cyclostoma *Draparnaud.*

Testa conicè elevata. *Spira* acuta. Sutura profunda.

Animal tentaculis duobus elongatis apicem versùs gradatim attenuatis, acutis, ad basin externè subabruptè dilatatis, oculigeris. *Oculi* parvi, vix convexi. *Operculum* testaceum, posticè in angulum productum, nucleo centrali.

Shell conically elevated. Spire acute. Suture deep.

Animal with two elongated tentacles gradually attenuated towards their extremities, at their bases somewhat abruptly externally dilated and bearing the eyes. Eyes small, scarcely convex. Operculum testaceous, produced into an angle behind, with the nucleus central.

1. Bithynia jaculator.

B. testâ anfractibus sex moderatim tumidis; suturâ moderatim profundâ.

Helix tentaculata, *Linn. Syst. Nat.* xxii. 1249; *Faun. Suec.* 2191; *Penn. Brit. Zool.* 140. t. lxxxvi. f. 140; *Chem. Conch.* ix. t. cxxxv. f. 1245; *Pult. Cat. Dorset,* 49. t. xxi. f. 12; *Donov. Brit. Shells,* t. xciii.; *Mont. Test. Brit.* 389; *M. & R. Trans. Linn. Soc.* viii. 220; *Dill. Desc. Cat.* 882; *Turt. Conch. Dict.* 68.

Nerita jaculator, *Müll. Verm.* ii. 185. no. 372.

Turbo nucleus, *Da Costa, Brit. Conch.* 91. t. v. f. 12.

Turbo pullus, *Walk. Test. Min. Rar.* f. 33.

Cyclostoma impurum, *Drap. Hist. des Moll. Terrest. et Fluv.* 36. t. 1. f. 19.

Limnæa tentaculata, *Flem. Edinb. Encycl.* vii. 78.

Animal cinereum, caput et collum flavo-punctata. *Tentacula* cinerea, pallida, olivaceo-irrorata. *Pes* supernè pallidè-nigricans, margine pallidiore aut cinereo, flavo-sparso punctis sæpissimè confluentibus.

Habitat in fluviis. Alt. ½ unc.

Shell moderately elevated, with six whorls moderately tumid. Suture moderately deep. Height half an inch.

Animal ash colour, head and neck spotted with yellow. Tentacles ash colour, pale, sprinkled with olive. Foot pale black above, margin paler or grey, spotted with yellow. Spots generally confluent.

Inhabits rivers. The Thames, the Avon, and the Exe.

2. Bithynia Leachii.

B. testâ altè elevatâ; anfractibus quinque ventricosis; suturâ valdè profundâ.

Turbo Leachii, *Shep. Trans. Linn. Soc.* xiv. 152.

Animal cinereum, caput et collum supernè nigrescentia, flavido-punctata. *Tentacula* longissima, cinerea, pallidè olivaceo

irrorata. *Pes* cinereus, hyalinus, opaco-albido irroratus, fasciâ utrinque suprà è punctulis flavidis effectâ.
Habitat in paludibus prope Londinum, communis.

Shell with its spire very much elevated, with five ventricose whorls, with its suture very deep.

Animal ash colour, head and neck blackish above, spotted with yellow. Tentacles very long, ash colour, sprinkled with pale olive. Foot hyaline, ash colour, sprinkled with opaque whitish, with a band on each side above formed of yellow punctulations.

Inhabits the marshes in the neighbourhood of London, and is very common also in ditches near the Surrey Canal. It has since been found in Campsey Mere and Holbrook Stream in Suffolk by my learned and worthy friend the Rev. R. Sheppard.

3. BITHYNIA INFLATA.

B. testâ spirâ altè elevatâ; anfractibus quinque valdè inflatis; suturâ valdè latâ et valdè profundâ.

Animal pallidè testaceum aut cinereum, nigrescente punctulatum. *Tentacula* longissima, cinerea, olivaceo irrorata. *Pes* cinereus, hyalinus, albido irroratus; fasciâ utrinque suprà et punctulis nigricantibus aut flavidis effectâ.
Habitat in stagnis; et in paludibus inter Bexhill et Castellum Pevensey dictum vulgatissimè.

The shell with its spire very much elevated; with five inflated whorls, with its suture very broad and very deep.

The animal pale, testaceous or cinereous, punctulated with pale black dots. The tentacula very long, cinereous, sprinkled with olive. The foot cinereous and hyaline, sprinkled with whitish, with a band on each side above formed of blackish or yellowish dots.

I discovered this new species in a small pool near William the Conqueror's table near Hastings, and afterwards very abundantly in the marshes between Bexhill and Pevensey Castle and in the moat on one side of the Castle.

ORDER VII. ASPIDOBRANCHIA.

Scutibranches *Cuvier*.

Branchia è foliis plurimis efformata, sub testâ posita. *Testa* exterior, non operculata. *Sexus* androgynus.

Branchia formed of many leaves, placed beneath the shell. Shell exterior, not operculated. Sex androgynous.

Synopsis Familiarum.

Fam. 1. Fissurelladæ. Testa clypeiformis, conico-elevata aut depresso-conica, subtùs cava; vertice perforato; foramine ovato vel oblongo.

Fam. 2. Emarginuladæ. Testa conico-elevata, anticè fissa; vertice recurvo.

Fam. 3. Capulidæ. Testa conica, integra.

FAMILY I. FISSURELLADÆ.

Testa clypeiformis aut depresso-conica; *vertice* perforata; *foramine* ovato vel oblongo.

Animal: caput et *collum* libera. *Os* rostriforme, retractile, maxillis nullis. *Tentacula* duo, conica, oculis ad basin externam. *Pallium* lateralitèr dilatatum, intùs testæ marginem undique impositum, subtus branchias ferens, extra testam semper prominulum. *Branchiæ* duæ, supernè pectinatæ, è cavitate branchiali utroque latere colli prominentes. *Pes* latus, ovalis. *Anus* ad medium colli basis exeuns. *Cor* supra collum locatur. *Cerebrum* circa collum nervorum ramos angustos anticè et posticè mittens, et à circuli parte inferiore rami duo ad viscera et pedem descendunt.

The shell shield-shaped or depressed-conic; its vertex perforated; its foramen oval or oblong.

The animal with the head and neck free. The mouth rostriform and retractile without jaws. Two conic tentacles bearing the eyes at their external bases. The mantle is dilated laterally, lining the interior margin of the shell, bearing the branchiæ underneath, and always projecting beyond the margin of the shell. The branchiæ two, pectinated above and very prominent from the branchial cavity on each side of the neck. The foot is broad and oval. The anus terminates at the middle of the base of the neck. The heart is situated laterally above the neck. The brain sends round the neck some slender branches of nerves anteriorly and posteriorly, and from the inferior part of the nervous circle descend two branches to the viscera and the foot.

Synopsis Generum.

Testa patelliformis, vertice perforata	97. Fissurella.
Testa conica, elevata, vertice recurvo, ante verticem perforata	98. Cemoria.

Genus 97. Fissurella.

Fissurella, *Lamarck, Cuvier.*

Testa patelliformis, clypeiformis, aut depresso-conica, subtùs cava, vertice perforato; foramine ovato vel oblongo.

Animal: capite anteriùs truncato. *Tentacula* duo conica; *oculis* ad basin externam. *Os* terminale, simplex, maxillis nullis. *Pes* latus, crassissimus.

The shell limpet-shaped, shield-shaped or depressedly conic, hollow below, the apex perforated, the aperture oval or oblong.

The animal with its head truncated anteriorly, two conic tentacula bearing the eyes at their external bases; the mouth terminal, simple, without jaws; the foot broad and very thick.

1. Fissurella græca.

F. testâ ab apice ad basin costatâ, costis lineis circularibus elevatis superficiem cancellatam efficientibus.

Patella græca, *Lister Conch.* t. ccccxxvii. f. 1, 2; *Penn. Brit. Zool.* iv. 144. t. lxxxix. f. 153; *Pult. Cat. Dorset.* 52. t. xxiii. f. 3; *Mont. Test. Brit.* 492; *M. & R. Trans. Linn. Soc.* viii. 236; *Flem. Edinb. Encycl.* vii. 69; *Dill. Desc. Cat.* 822; *Turt. Conch. Dict.* 141.

Larva reticulata, *Da Costa, Brit. Conch.* t. 1. f. 3?

Patella reticulata, *Donov. Brit. Shells,* t. xxi. f. 3.

Fissurella græca, *Lam. Hist. Nat. des Anim. sans Vert.* vi. 11.

Habitat in mari Atlantico, Mediterraneo et Adriatico vulgatissimè. Long. $\frac{1}{2}$. Alt. $\frac{1}{4}$ unc.

Shell ribbed from its apex to its base; the ribs sculptured with circular elevated lines, forming a cancellated surface. Length half an inch; height a quarter of an inch.

This species is very common; it inhabits the Atlantic, Mediterranean and Adriatic seas.

Genus 98. CEMORIA.

Testa conico-elevata, ante verticem perforata. *Vertex* recurvus; internè processu cavo, tenui, instructo, anticè directo. Animal incognitum.

Shell conically elevated, perforated before the vertex. Vertex recurved; furnished internally with a thin, hollow, projecting process.

Animal unknown.

This genus is distinguished from *Fissurella* by the projecting process within the shell under its aperture.

1. CEMORIA MONTAGUANA. Tab. X. fig. 6.

C. testâ ab apice ad basim costatâ, costis latis, lineis circularibus reticulatis.

Patella apertura, *Mont. Test. Brit.* 491. t. xiii. f. 11 (figura pessima); *M. & R. Trans. Linn. Soc.* viii. 236; *Flem. Edinb. Encycl.* vii. 69; *Dill. Desc. Cat.*; *Turt. Conch. Dict.* 141.

Habitat in Danmoniæ et Cornubiæ Australis mari rarissimè. Mus. Montagu in Mus. Brit. Alt. $\frac{1}{8}$. Long. $\frac{1}{4}$ unc.

Shell ribbed from the apex to the base. Ribs wide and netted with encircling lines. Height one-eighth, length one-fourth of an inch.

Inhabits the British sea on the southern coasts of Devon and Cornwall.

The species figured in Montague's "Testacea Britannica," named *Patella apertura*, is not to be found in his collection; but I have every reason to believe that it may belong to this Genus.

2. CEMORIA FLEMINGIANA. Tab. X. fig. 4, 5.

C. testâ costis alternatim latis et angustis.

Habitat in mari Orcadensi et Zetlandiensi rarissimè. Mus. D. J. Fleming et nost. in Mus. Brit. Long. $\frac{1}{4}$. Alt. $\frac{3}{16}$ unc.

Shell with alternately broad and narrow ribs. Length one-fourth of an inch; height three-sixteenths.

This highly interesting species was discovered in the Shetland Islands by my worthy friend the Rev. Dr. J. Fleming, who most kindly communicated to me the specimens from which this description and figures have been made.

FAMILY II. EMARGINULADÆ.

Testa scutellato-conica; vertice inclinato; cavitate simplici; margine posteriore fisso aut emarginato.

Animal: tentacula duo, conica, oculis ad basin externam. *Pallium* amplissimum, marginibus replicatis, testam partim obtegens. *Pes* latus, crassiusculus.

The shell flat-conic, its apex inclined; its cavity simple; its hinder margin fissured or notched.

The animal with two conic tentacles, the eyes placed at their base; the mantle very much dilated, its margins bent back, partly covering the shell; the foot is broad and thick.

The organs of digestion, circulation and sensation differ not essentially from those of the Fissurelladæ.

Genus 99. EMARGINULA.

Emarginula, *Lamarck, Cuvier.*

Testa conico-elevata, anticè fissa; vertex recurvus.

Animal: tentacula duo, conica, oculis ad basin externam. *Pallium* amplissimum. *Pes* latus, crassiusculus.

The shell conically elevated, with a fissure on its front aspect; its apex recurved.

The animal with two conic tentacles; the eyes situated at their external bases; its mantle very large; its foot broad and thick.

1. EMARGINULA VULGARIS.

E. testâ ab apice ad basin costatâ; interstitiis lineis elevatis, spinosis, transversim sculptis.

Patella fissura, *Lister, Conch.* t. ccccexliii. f. 28; *Petiv. Gaz.* t. lxxv. f. 2; *Linn. Syst. Nat.* 1261. no. 778; *Müll. Zool. Dan.* t. xxiv. f. 7–9; *Penn. Brit. Zool.* iv. 144. t. xc. f. 152; *Martini, Conch.* i. t. xii. f. 109, 110; *Born. Mus.* t. xviii. f. 12; *Da Costa, Brit. Conch.* t. i. f. 4; *Pult. Cat. Dorset.* 51. t. xxiii. f. 4; *Donov. Brit. Shells,* t. iii. f. 2; *Mont. Test. Brit.* 490; *M. & R. Trans. Linn. Soc.* viii. 236; *Flem. Edinb. Encycl.* vii. 69; *Dill. Desc. Cat.* 823; *Turt. Conch. Dict.* 141.

Emarginula fissura, *Lam. Hist. Nat. des Anim. sans Vert.* vi. 7.

Habitat in scopulos ad littora maris. Long. $\frac{1}{2}$. Alt. $\frac{1}{4}$ unc.

Shell ribbed from the base to the apex; interstices sculptured with elevated spinous and transverse lines. Length one half, height a quarter of an inch.

Inhabits rocks on the seashore.

2. EMARGINULA ROSEA.

E. testâ ovatâ, cancellatâ, epidermide fusco indutâ, intùs roseâ; vertice acuto, valdè recurvo vel subinvoluto.

Emarginula rosea, *Bell, Zool. Journ.* i. 52. t. iv. f. 1.

Emarginula rubra, *Lam. Hist. Nat. des Anim. sans Vert.* vi. partie ii. 7?

Habitat in mari Dorsettensi Australi.

Shell oval, cancellated, covered with a fuscous-brown epidermis; inside rosy; its vertex acute, very much recurved or subinvoluted. Height three-eighths of an inch; the length rather less.

Inhabits the southern coast of Dorset in Poole Harbour.

This new species was lately discovered by my friend Mr. Thomas Bell, and although I have pledged myself in the Introduction "to have described no Species that has not come under my individual inspection," yet as I am so perfectly assured of his accuracy, I have in this description, which I have literally copied from his own description in the Journal above quoted, broken my pledge for the first time. These are the only recent Species that have hitherto been discovered.

FAMILY III. CAPULIDÆ.

Testa obliquè conica, anteriùs recurva, apice uncinato subspirali. *Apertura* plùs aut minùs rotundata. Impressio muscularis elongata, arcuata, transversa, intùs ad limbum posticum?

Animal: tentacula duo, conica, externâ basi *oculis* duobus. *Branchiæ* propè collum, infrà limbum anticum cavitatis uniordinatæ.

The shell oblique conic, recurved anteriorly; its apex uncinated, subspiral; its aperture more or less rounded; the muscular impression elongate transverse arcuate within at the posterior margin?

The animal with two conic tentacles, externally with two eyes at their bases; the branchiæ situated near the neck placed within the anterior border of the branchial cavity in a single series.

The animal is attached to its shell by a circular muscle divided anteriorly for the exit of its head and the aperture leading to the branchial cavity. The branchiæ are composed of many straight lamellæ adhering in a single transverse range at the bottom of the branchial cavity, which is situated above the head and neck : the branchial auricle is situated behind, under the left extremity of this range.

The mouth is rostriform and very susceptible of being prolonged, and is wrinkled above with a deep groove. The tentacles bear the eyes on their exterior aspect near their base.

Under the œsophagus, and before the anterior margin of the foot, there is a kind of ruff, formed by many reflections of a double membrane, which, when extended, probably forms an easier prolongation of the foot for facilitating the animal when creeping.

The anus is situated near the right side of the branchial cavity.

The general organization of the genera composing this Family approaches much nearer to that of the Purpuridæ than to the Fissurelladæ, Emarginuladæ or Patelladæ.

Synopsis Generum.

Testa conicè elevata. Vertex recurvus subspiralis	100. CAPULUS.
Testa conica, intùs lamellâ subconvolutâ instructa	101. MITELLA.

Genus 100. CAPULUS.

Capulus, *De Montfort, Cuvier.*
Pileopsis, *Lamarck.*

Testa ad basin plùs aut minùs rotundata, spiraliter elevata. *Spira* reflexa.

Animal, ut suprà.

Shell more or less rounded at its base, spirally elevated. Spire reflexed behind.

Animal as above.

CAPULUS HUNGARICUS.

C. testâ lineis tenuibus elevatis, ab apice usquè ad basin ductis,

lineis angustioribus, inter alias interpositis; epidermide rugosâ brunneâ.

Patella Ungarica, *Lister, Conch.* t. cccccxliv. f. 32; *Linn. Syst. Nat.* xii. 761. no. 1259; *Born. Mus.* 414. *Vign.* f. D.; *Martini, Conch.* i. t. xii. f. 107, 108; *Gmel. Syst. Nat.* 3709; *Pult. Cat. Dorset.* 51. t. xiii. f. 7; *Donov. Brit. Shells,* t. xxi. f. 1; *Mont. Test. Brit.* 486; *M. & R. Trans. Linn. Soc.* 230; *Flem. Edinb. Encycl.* vii. 70; *Dill. Desc. Cat.* 821; *Turt. Conch. Dict.* 140.

Patella Hungarica, *Penn. Brit. Zool.* iv. 143; *Borlase, Cornwall,* t. xxviii. f. 4.

Patella pileus Moronis, *Da Costa, Brit. Conch.* t. 1. f. 7.

Pileopsis Ungarica, *Lamarck, Hist. des Anim. sans Vert.* vi. 17.

Habitat in mari Europæano profundo vulgatissimè. Long. et alt. 2½ unc.

Shell with slightly elevated lines, extending from the base to its apex, with narrower lines interposed between the others; epidermis rough brown. Height and diameter two inches and a half.

Inhabits the deep European seas very commonly.

Genus 101. MITELLA.

Mitella, *D'Argenville.*

Pileopsis, *Lamarck.*

Testa depresso-conica, apex acutus, internè lamellâ spiraliter contortâ instructa.

Shell depressedly conic; its apex acute, internally with a spirally contorted lamella.

MITELLA SINENSIS.

Testa superficie interiore lamellis flexis instructa; epidermide fuscâ rugulosâ.

Patella Chinensis, *Linn. Syst. Nat.* 1257. no. 749; *Lister, Conch.* t. cccccxliv. f. 32; *Born. Mus.* 114. *Vign.* f. *e.*; *Martini, Conch.* i. t. xii. f. 111, 112; *Flem. Edinb. Encycl.* vii. 69; *Dill. Desc. Cat.* 823.

Patella antiquata, *Pult. Cat. Dorset.* 51. t. xxii. f. 7, *a.*; *Mont. Test. Brit.* 485. t. xiii. f. 9.
Patella militaris, *Turt. Conch. Dict.* 140.
Pileopsis mitrula, *Lam. Hist. Nat. des Anim. sans Vert.* vi. 18.
Habitat in Danmoniæ et Cornubiæ occidentalis, et in Caledoniæ Borealis mari profundo; testis et lapidibus adhærens. Alt. et long. ½ unc.

Shell with its interior surface furnished with curved lamellæ; the epidermis roughish fuscous brown. Height and diameter half an inch.

Inhabits the western coasts of Cornwall and Devon in deep water; it adheres generally to dead shells, and sometimes, but rarely, on stones.

ORDO VIII. CYCLOBRANCHIA.

Branchiæ è foliis efformatæ, inter pedes basin et pallium positæ. *Testa* sæpe exterior, sæpe multipartita, nunquam operculata.

FAMILY I. PATELLADÆ.

Patella, *Cuvier, Lamarck, De Montfort, &c.*

Testa integra, subconica, externa, dorsum tegens.

Animal: caput et *collum* libera. *Os* rostriforme, retractile. *Tentacula* duo, depressa, ad basin externè dilatata, oculigera. *Pallium* lateraliter dilatatum, intùs testa marginem undique impositum, subtus branchias ferens. *Pes* ovalis. *Anus* et *oviductus* ad dextram ad basin colli exeuntes. *Cor* anticum supra collum ad sinistram positum.

Shell entire, subconic, external, covering the back.

Animal: head and neck free. Mouth rostriform and retractile. Tentacles two, depressed, dilated externally at their bases, bearing the eyes. Mantle dilated laterally, applied to every side of the shell, a little within its margin, bearing the branchiæ underneath. Foot oval. Termination of the anus and oviduct on the right side at the base of the neck. Heart situated on the left side of the upper part of the neck.

General Observations on this Family.

When the animal is carefully extracted from the shell, and is viewed from above, the dilated part of the mantle is seen extending equally round the whole animal. Above the base of the mantle, and arising from the upper margin of the foot, is a broad many-lobed muscle extending round the posterior part of the animal, and is produced anteriorly as far as the sides of the pericardium, where it becomes abruptly and extremely narrow. This muscle attaches the animal to the shell, which bears the impression of all its lobes. The upper part of the animal is covered by a membrane, which is perhaps a dilatation of the mantle. It is attached on every side by the circular muscle mentioned above. On removing this membrane, the upper part of the neck, the terminations of the oviduct and anus on the right, the heart within the pericardium on the left, and the dorsal aspect of the abdomen filled with the liver, and the intestines convoluted in its substance, may be readily seen.

To obtain a view of the lower aspect of the interior of the body, it is necessary to separate the foot carefully from its attachment to the circular muscle, and to divide longitudinally the lower aspect of the neck. We can then observe the rostriform mouth, at the base of which is seen the nervous cord passing upwards to form the nervous collar round the œsophagus. In the abdominal cavity to the right anteriorly, is situated the spiral tongue and the ovarium, between which and the tongue the intestines are very evident, when the ovarium is not in a distended state; in which case they are often completely hidden.

The nervous cord above mentioned forms on each side, in the region of the tentacles, a somewhat bilobate ganglion which receives three nerves; one from the eye, one from the tentacles, and the third from the surrounding integuments.

Such are the characters common to the two following genera of animals, both of which inhabit our seas.

Synopsis Generum.

Branchiæ foliaceæ, imbricatæ, pedem et caput undique circumdantes. Lingua spiralis. Tentacula duo, acuminata, apice acuta .. 102. PATELLA.

Branchiæ foliaceæ, imbricatæ, pedem undique nisi anticè circumdantes. Lingua spiralis. Tentacula duo, acuminata, apice obtuso .. 103. PATINA.

Genus 102. PATELLA.

Patella *Auctorum.*

Branchiæ foliaceæ, imbricatæ, pedem et caput undique circumdantes. *Lingua* spiralis. *Tentacula* acuminata, apice acuta.

Branchiæ composed of imbricating, foliaceous processes, surrounding the foot and head entirely. Tongue spiral. Tentacles acuminate, their points acute.

1. PATELLA VULGATA.

P. testâ radiatim costatâ; costis irregularibus, extùs luteo-cinereâ aut virente, intùs radiatim variegatâ, apice subcentrali.

Animal lateribus pallii sordidi albidis, flavidis aut testaceis. *Pes* subtus albidus, sordidus aut nigricante griseus. *Tentacula* nigricantia aut grisea.

Patella vulgata, *Lister, Anim. Angl.* t. v. f. 40; *Conch.* t. ccccccxxxv. f. 14; *Linn. Faun. Suec.* 2199; *Syst. Nat.* xii. 1258. no. 758; *Borlase, Cornwall,* t. xxviii. f. 3; *Penn. Brit. Zool.* iv. 142. t. lxxxix. f. 145; *Da Costa, Brit. Conch.* iii. t. iii. f. 1, 2, 8; *Martini, Conch.* i. t. v. f. 38; *Pult. Cat. Dorset.* 51. t. xxiii. f. 1, 2, 8; *Donov. Brit. Shells,* t. xiv.; *Mont. Test. Brit.* 475; *M. & R. Trans. Linn. Soc.* 475; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 1052; *Turt. Conch. Dict.* 135; *Lam. Hist. Nat. des Anim. sans Vert.* vi. 331.

Patella depressa, *Penn. Brit. Zool.* iv. 142. t. lxxxix. f. 146. var.

Habitat in mari Europæano vulgatissimè, saxis adhærens. Long. $2\frac{1}{2}$; alt. $1\frac{1}{2}$ unc.

Shell with irregular radiating ribs, without yellow, grey or green, with variegated rays within, the apex nearly central. Length rarely exceeding two inches and a half. Height one inch and a half.

Animal with the sides of the mantle dirty white, yellow or testaceous. Foot underneath whitish, dirty or black grey. Tentacles blackish or grey.

Inhabits rocks very commonly on all the shores of Europe.

The shell is sometimes conic, sometimes more or less depressed. The elevated radiating lines are always irregular in size, and often assume the form of ribs, having smaller ribs or elevated lines between them. In young shells the apex is placed anterior to the centre.

The colour of the outside varies but little, but on the inside it is very inconstant, being pale green, glaucous, yellow, testaceous, reddish purple or bluish red, and radiated with dark brown or purple brown stripes, which are often interrupted, rarely reach the summit, and are sometimes wanting.

The conic variety is most frequently only striated, whilst the depressed one has elevated ribs. These varieties, however, pass so insensibly into each other, as to leave no doubt as to their specific identity.

The spiral tongue is beset with slightly bent rows of short spines, each row consisting of six, the four middle ones simple. The lateral bifid organs of mastication are composed of five cartilaginous pieces, the superior of which seems to perform the function of an upper jaw.

2. PATELLA PARVA.

P. testâ subelongatâ, depressâ, obsoletissimè radiato-costatâ, concentricè striatâ, apice subantico; epidermide corneâ.

Patella parva, *Da Costa, Brit. Conch.* vii. t. viii. f. 11; *Donov. Brit. Shells,* t. xxi. f. 2; *Mont. Test. Brit.* 480; *Flem. Edinb. Encycl.* vii.

Patella virginea, *M. & R. Trans. Linn. Soc.* viii. 235; *Dill. Desc. Cat.* 1052; *Turt. Conch. Dict.* 136.

Habitat in mari, sæpius in profundo, lapidibus et thalassophytis adhærens. Alt. $\frac{1}{2}$ unc.

Shell rather elongate, depressed, with very obsolete, radiating ribs, concentrically striated, the apex near the anterior margin; the epidermis horn-coloured. Length never exceeding half an inch.

Colour white, rayed with rose-red or violet: these rays are obscured by the epidermis.

This species is not uncommon on most of our coasts, but generally is only to be taken alive by dredging. It occurs in Salcombe Bay, Torquay, Plymouth Sound, Devon; Padstow, Cornwall; Dover and Sandgate, Kent; Hastings, Sussex; Tenby, Wales; Dunbar and Bantry Bays. It adheres to old shells, to stones, and more rarely to sea-plants, and is sometimes found at low tide adhering to them.

Young shells are much elevated, and in this state are quite pellucid, and frequently have no rays.

3. PATELLA CLELANDIANA.

P. testâ subelongatâ, subdepressâ, rufo-radiatâ: radiis interdum coalescentibus (hinc subreticulatis), internè cærulescente-albidâ; margine et apice badiis.

Patella Clelandii, *Sowerby, MSS.*

Habitat in mari Hiberniensi rarissimè. Mus. D. Goodall et Sowerby. Alt. 1; lat. $\frac{3}{4}$ unc.

Shell somewhat elongated, rather depressed, radiated with red, with the rays sometimes coalescing (somewhat reticulated), internally bluish-white; margin and apex chestnut-brown. Length nearly an inch. Breadth three-quarters of an inch.

Found in Bangor Bay, Ireland, by J. Cleland, Esq.

Genus 103. PATINA.

Patella *Auctorum.*

Branchiæ foliaceæ, imbricatæ, pedem undique nisi anticè circumdantes.

Branchiæ composed of imbricating, foliaceous processes surrounding every side of the foot, excepting its anterior aspect.

1. PATINA LÆVIS.

P. testâ crassiusculâ, opacâ, sæpius complanatâ, lævis obsolete radiato-subcostata, apice subantico.

Patella lævis, *Penn. Brit. Zool.* 144. t. 1. f. 151. fig. inf.; *Dill. Desc. Cat.* 1043; *Turt. Conch. Dict.* 137.

Patella cærulea, *Pult. Cat. Dorset.* t. xxiii. f. 6; *Flem. Edinb. Encycl.* 76; *Lamarck, Hist. Nat. des Anim. sans Vert.* vi. 328.

Habitat in mari Britannico vulgatissimè ad radices thalassophytorum adhærens. Alt. 1⅜; lat. ⅞ unc.

Shell thickish, opaque, generally depressed, smooth, with radiating ribs; its apex rather anterior. Length rather more than one inch. Breadth seven-eighths.

Inhabits the British seas at the roots of marine plants.

Its apex is rarely elevated. Young shells are generally pellucid, and are rayed with blue or chestnut: the rays are often interrupted: in this state, the apex is placed close to the anterior margin.

2. PATINA PELLUCIDA.

P. testâ pellucidâ, lævi, elevatâ, cæruleo- aut castaneo-radiatâ; apice anticè deflexâ, concentricè striolatâ et obsoletissimè radiato-costatâ.

Patella pellucida, *Linn. Syst. Nat.* xx. 1260; *Gmel. Syst. Nat.* 3717; *Donov. Brit. Shells,* t. iii. f. 1; *Mont. Test. Brit.* 477; *M. & R. Trans. Linn. Soc.* viii. 233; *Flem. Edinb. Encycl.* vii. 76; *Dill. Desc. Cat.* 137; *Turt. Conch. Dict.* 137.

β. testâ apice maculis duabus cæruleis notatâ.

Patella bimaculata, *Mont. Test. Brit.* 182. t. xiii. f. 8; *M. & R. Trans. Linn. Soc.* viii. 235.

Habitat in mari Britannico vulgaris, thalassophytorum foliis adhærens. Alt. 1 unc.

Shell pellucid, smooth, elevated, radiated with blue or chestnut; its apex anterior and deflexed; its surface concentrically striolated, and very obsoletely ribbed. Length rarely exceeding an inch.

Colour horny; the rays often interrupted and very variable in colour.

Inhabits most of our rocky coasts, and adheres to the leaves of sea plants. It is most abundant in the Scottish seas.

FAMILY II. CHITONIDÆ.

Chiton *Auctorum.*

Testa è lamellis octo arcuatis *Dorsum* imbricantibus composita.

Animal: *caput* pallio coalitum. *Os labio* carneo et *linguâ* spinosâ instructum; maxillæ nullæ*.

Animal: *os* rostriforme, breve, retractile, carnosum; *maxillæ* nullæ; *lingua* elongata, anticè spinis fortissimis corneis armata, posticè sacco peculiari instructa. *Œsophagus* brevis in *ventriculum* superficie interiore striis elevatis dilatatur; *canalis intestinalis* est longissima, tenuis, et sæpissimè replicatur; hepar est magnum, valdè lobatum; lobus in lobulis plurimis arbuscula referentibus dividitur: inter lobos illos ventriculus et intestinorum replicationes locantur.

Pericardium inter oviductum et viscerum cavitatis marginem posteriorem locatur; *oviducti* duo ad latera dextrum et sinistrum terminant; *cor* est symmetricum, ventriculorum et auricularum duarum consistens; *ventriculi* per aperturas duas, distinctas, inter columnas carnosas, cum auriculis (quæ etiam aperturas duas distinctas habent) per aperturas duas communicant: ex corde anticè arteria branchialis exit: branchiis sanguinem donat, et in ore per ramos plurimos terminat: arteriæ branchialis sanguis in arteriam branchalem per venas duas magnas laterales ex hepate exit et intestinorum sanguinem fert. In familiæ hujus systemate circulatio est fere eadem ut in Gasteropodis aliis omnibus.

Ovarium est conicum, oblongum, lateralitèr irregularitèr bilobatum; *oviducti* duo, ad dextram et sinistram terminant. *Sexus* masculinus nullus aut saltem non obvius.

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* In Maxillæ superiore situ Lamella cartilaginosa locatur.

Branchiæ lamellarum minimarum triangularium compositæ; ad latera sua venæ branchiales principales locantur.

Cerebrum inter oris massam carnosam et oris velum locatur; aspectus suus anterior a velo nervorum ramulos plurimos recipit; ganglia duo, utrinque nervos duos emittentes, circuli nervosi partem anteriorem formant; ganglia duo posteriora nervos tres recipiunt, et ramo intermedio jungentes circuli nervosi partem posteriorem formant: gangliorum rami posteriores probabilitèr ex visceris et pedis musculis exsurgunt.

The shell is composed of eight arched lamellæ covering the back*.

The animal with its head joined to the body by its mantle; the mouth furnished with a fleshy lip and spiny tongue; has no jaws, but has in the situation of the upper jaw a cartilaginous lamella.

The mouth of the animal is rostriform, short, retractile and fleshy; lip without jaws, and a spiny tongue, with a peculiar sac at its base: the œsophagus is short, dilated into a stomach whose inner surface has elevated ridges; the intestinal canal is very long, very slender, and very often replicated; the liver is very large with many lobes divided into many smaller lobes resembling little trees: between these lobes are placed the stomach and the reflections of the intestine.

The pericardium is situated between the oviduct and the posterior margin of the cavity containing the viscera: the heart is symmetrical, consisting of two ventricles and two auricles; the ventricles each of them has two very distinct orifices with the auricles, which have two similar orifices. Out of the heart anteriorly passes out the branchial artery, which, after supplying the branchiæ (gills) with blood, terminates at the head with many minute branches: the branchial artery receives the blood from the lateral veins and distributes the blood to the liver and the intestines.

The branchiæ are composed of small triangular lamellæ; on their sides the principal branchial veins are situated.

The brain is situated between the fleshy mass of the mouth and the veil of the mouth; its anterior aspect receives from the veil many small branches of nerves: two ganglia situated on each side below the brain; each of them sends off two nerves, which, joining together, form the anterior part of the annular circle of nerves: the two posterior ganglia each receives three nerves, and are connected to each other by an intermediate nervous branch, which forms the posterior part of the nervous circle, and renders it perfect: these nervous branches, which join the ganglia behind, most probably rise out of the viscera and the muscles of the foot. Although my friend Professor Cuvier and myself have exerted all our endeavours to trace the origin of these nerves, we have been unsuccessful; owing to the exotic specimens we dissected being so much hardened by the spirit in which they were preserved, as completely to baffle us. I have however been enabled to trace their origin a very little more than Baron Cuvier.

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* Accidental varieties have seven or six valves, which have been considered as distinct species.

Synopsis Generum.

Membrana lateralis squamosa	104. LEPIDOPLEURUS.
Membrana lateralis spinularum fasciculis instructa................	105. ACANTHOCHÆTES.
Membrana lateralis tomentosa, hispida aut rugulosa	106. CHITON.

Genus 104. LEPIDOPLEURUS.

Testa membranâ laterali squamosâ.

Shell with its lateral membrane covered with scales.

1. LEPIDOPLEURUS ALBUS.

L. testâ albâ, dorso tuberculis minutis elevatis sculptâ; membranâ laterali squamis rugulosis sculptâ.

Chiton albus, *Linn. Syst. Nat.* xii. 1107. no. 8; *Chem. Conch.* 8. t. xcvi. f. 817; *Pult. Cat. Dorset.* 25. t. 1. f. 5; *Mont. Test. Brit.* 4; *M. & R. Trans. Linn. Soc.* viii. 22. t. 1. f. 4; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 11; *Turt. Conch. Dict.* 35.

Habitat in mari Europæano vulgaris, thalassophytis et conchis adhærens. Long. $\frac{2}{8}$ unc.

Shell white; back with minute elevated tubercles; the lateral membrane with rugulose scales. Length two-eighths of an inch.

Inhabits the European seas; is very common: it adheres to sea-weeds and shells.

2. Lepidopleurus punctulatus.

L. testâ obtusè carinatâ, viridescente aut rufescente sordidè albido variegatâ; membranâ laterali squamis imbricatis excavato-punctulatis.

Habitat in mari Daumoniensi Occidentali et Caledoniâ Australi rariùs. Mus. nost. in Mus. Brit. Long. ½ unc.

Shell obscurely carinated, greenish or reddish, variegated with pale dirty white; the scales of the lateral membrane imbricated, with very small excavated punctures. Length half an inch.

This species is found on the shores of the Plymouth Sound, the shores of the Isle of Arran and the Mull of Cantire in Scotland. It was first discovered by my cousin C. Prideaux, Esq.; I afterwards found it occasionally in the above-mentioned localities.

3. Lepidopleurus carinatus.

L. testâ carinatâ, tuberculis minutissimis sculptâ; membranâ laterali squamis minutissimis glabris.

Habitat in mari Hiberniensi rarissimè. Mus. nost. in Mus. Brit. Long. $\frac{6}{8}$ unc.

Shell carinated, sculptured with very minute tubercles; the scales of the lateral membrane very minute and smooth. Length six-eighths of an inch.

This species was first discovered by Miss Hutchings off Bantry in Bantry Bay: she gave me one specimen, and I afterwards found a few in Dingle Bay on the southernmost coast of Ireland.

Genus 105. Acanthochætes.

Testa membranâ laterali spinularum fasciculis instructâ.

Shell with its lateral membrane furnished with bundles of little spines.

ACANTHOCHÆTES VULGARIS.

A. testâ carinatâ, elevato-tuberculatâ, tuberculis planis sculptâ.

Chiton fascicularis, *Linn. Syst. Nat.* xii. 1106. no. 4; *Chem. Conch.* 10. t. clxxiii. f. 1638; *Gmel. Syst. Nat.* 1106; *Pult. Cat. Dorset.* 25. t. 1. f. 2; *Brug. Encycl. Méth.* t. clxiii. f. 15; *Mont. Test. Brit.* 5; *M. & R. Trans. Linn. Soc.* 20. t. 1. f. 1; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 8; *Wood, Gen. Conch.* i. 16. t. ii. f. 6; *Turt. Conch. Dict.* 34; *Lam. Hist. Nat. des Anim. sans Vert.* vi. 321.

Habitat in mari Europæano vulgaris, lapidibus et saxis adhærens. Long. $\frac{5}{8}$ unc.

Shell carinated, with elevated plain tubercles. Length rather more than half an inch.

Inhabits the seas of Europe, and is very commonly found adhering to rocks and stones.

Genus 106. CHITON.

Testa membranâ laterali hispidâ rugulosâ aut tomentosâ.

Shell with its lateral membrane bristled, roughish or woolly.

1. CHITON CINEREUS.

C. testâ cinereâ, dorso lateribusque tuberculis in lineis rectis dispositis sculptis.

Chiton cinereus, *Linn. Syst. Nat.* xii. 1107. no. 9; *Born. Mus.* t. 1. f. 3; *Gmel. Syst. Nat.* 3204; *Pult. Cat. Dorset.* 25. t. 1. f. 4; *Mont. Test. Brit.* 3; *M. & R. Trans. Linn. Soc.* viii. f. 4; *Flem. Edinb. Encycl.* vii. 76; *Dill. Desc. Cat.* 12; *Turt. Conch. Dict.* 34.

Habitat in maris Britannici littora scopulosa communis.

Shell cinereous, with its back and sides sculptured with tubercles arranged in straight lines. Length half an inch.

Inhabits the rocky shores of Great Britain, at Salcombe Bay, Devonshire; Falmouth, Cornwall; Yawl, Bantry and Dingle

Bays, Ireland; the Friths of Forth and Clyde, Scotland; Tenby, Swansea and Milford Haven, Wales.

2. CHITON FLEMINGIUS.

C. testâ carinatâ rufâ, tuberculis minutissimis sculptâ.

Habitat in mari Zetlandico rarissimè. Mus. Dr. Fleming; et nost. in Mus. Brit.

Shell carinated, red, sculptured with very minute tubercles. Length three-eighths of an inch.

Inhabits the Shetland sea; is very rare.

This highly interesting species was communicated by my kind friend the Rev. Dr. J. Fleming, who discovered it in the Shetland seas.

3. CHITON RUBER.

C. testâ rubrâ, tenuiter costatâ, lineis tenuissimis elevatis radiantibus sculptâ: interstitiis tuberculatis.

Habitat in mari Scotico rarius. Mus. nost. in Mus. Brit. Long. $\frac{1}{2}$ unc.

Shell red, slightly carinated, sculptured with very narrow radiating lines; the interstices tuberculated. Length half an inch.

Inhabits the Scottish seas; is rather rare: I have found it near the Bass Rock at the mouth of the Frith of Forth, in the Isle of Arran and in the Hebrides.

4. CHITON CRANCHIANUS.

C. testâ lævi, viridescente.

Habitat in mari Cornubiensi occidentali rarissimè. Mus. nost. in Mus. Brit. Long. $\frac{3}{4}$ unc.

Shell smooth, greenish. Length three-quarters of an inch.

Inhabits the sea, Falmouth, Cornwall; is very rare; was discovered by Mr. J. Cranch.

5. CHITON TUBERCULATUS.

C. testâ, tuberculis numerosissimis, minutissimis, in lineis longitudinalibus dispositis, sculptâ.

Habitat in mari Hiberniensi Australi rarissimè. Mus. nost. in Mus. Brit. Long. $\frac{2}{8}$ unc.

Shell sculptured, with very numerous and minute tubercles disposed in longitudinal lines. Length two-eighths of an inch.

Inhabits the sea on the southern coast of Ireland; is very rare: I found a very few specimens in Dingle Bay.

6. Chiton fuscatus.

C. testâ paululùm carinatâ, dorso tuberculis minutissimis in lineis rectis dispositis sculptâ; tuberculis lateralibus indiscriminatim digestis.

Habitat in mari Cornubiensi Australi rarissimè. Mus. nost. in Mus. Brit. Long. $\frac{3}{8}$ unc.

Shell a very little carinated; back with very minute tubercles arranged in straight lines; the lateral tubercles indiscriminately arranged. Length three-eighths of an inch.

Inhabits the Welsh sea on the southern coasts: I found it first at the Mumbles near Swansea, and afterwards found a few more specimens at Milford Haven.

7. Chiton lævis.

C. testâ convexâ, carinatâ, glabrâ.

Chiton lævis, *Penn. Brit. Zool.* iv. 102. t. xxiv. f. 2; *Gmel. Syst. Nat.* 3206; *Mont. Test. Brit.* 2; *M. & R. Trans. Linn. Soc.* viii. 21; *Flem. Edinb. Encycl.* vii. 76; *Turt. Conch. Dict.* 33.

Habitat in mari Zetlandico, rarissimè. Mus. D. Fleming; et nost. in Mus. Brit. Long. $\frac{2}{8}$ unc.

Shell convex, carinated and smooth. Length two-eighths of an inch.

Inhabits the Shetland sea.

Discovered by the Rev. Dr. J. Fleming in Shetland, who communicated it to me.

8. Chiton latus.

C. testâ ovato-latâ, glabrâ, carinatâ, fuscescente, margine fulvescente.

Habitat in mari Danmoniensi Australi rarissimè. Mus. Dr. Griffiths; et nost. in Mus. Brit. Long. $\frac{2}{8}$ unc.

Shell ovately-broad, smooth, carinated, pale fuscous brown, its margin fulvous. Length two-eighths of an inch.

Inhabits the sea on the southern coast of Devonshire: it is very rare, and was discovered at Torquay by my very kind friend Mrs. Griffiths.

9. CHITON SCOTICUS.

C. testâ fuscescente ovatâ, tuberculis minutissimis sculptâ, margine hispido.

Habitat in mari Scotico rarissimè, lapidibus et testis adhærens. Mus. nost. in Mus. Brit. Alt. $\frac{7}{8}$ unc.

Shell pale fuscous brown, ovate, longitudinally tuberculated with very minute tubercles; its margin hispid or roughish. Length seven-eighths of an inch.

Inhabits the sea, Frith of Forth. I discovered this species by dredging between the Bass Rock and the Isle of May.

10. CHITON VARIEGATUS.

C. testâ ovatâ, convexâ, carinatâ, elevato-tuberculatâ, tuberculis minutissimis.

Chiton marginatus, *Gmel. Syst. Nat.* 3206; *Penn. Brit. Zool.* iv. 72. t. xxxvi. f. 1; *Pult. Cat. Dorset.* 25. t. i. f. 1; *Mont. Test. Brit.* 1; *M. & R. Trans. Linn. Soc.* viii. 21; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 1098; *Turt. Conch. Dict.* 33; *Wood, Gen. Conch.* t. iii. f. 4; *Lam. Hist. Nat. des Anim. sans Vert.* vi. 321.

Habitat in mari Danmoniensi et Cornubiensi. Color pallidè rufescens, fuscescens, albido variegatus. Long. $\frac{1}{2}$ unc.

Shell ovate, convex, carinated with very minute elevated tubercles, pale reddish brown varied with white. Length half an inch.

Inhabits the sea; Tenby, Wales; Torbay, Devonshire.

CLASSIS IV. ASCIDIÆ.

Mollusca tunicata, *Lamarck.*
Ascidiæ, *Savigny, Cuvier.*

The external integument of the body is coriaceous or soft, very much organized, produced above into two cylindric tubes, the one branchial, the other anal. This integument is reflected inwardly through the tubes, into which it is produced, and forms a very thin serous interior integument.

The mantle is thin, and lines the inner surface of the inner integument and its tubes. The branchiæ or gills are two, reticulated, and adhere to the interior walls of the mantle. The mouth is a round aperture, sulcated, or furnished with imperfect tentacles, or very small teeth.

All these animals inhabit the sea.

General Observations on the genus Ascidia.

All the animals of this genus are fixed by their base to rocks, sand, shells, or even on the bodies of other species of this genus. All the species vary much in their form, according to the degrees of contraction or dilatation: the surface is smooth, tuberculated, mammillated, grooved or folded.

The animal serving as the type of this class was named *Thethyrium* by Aristotle, who has described its generic character nearly as perfectly as any of the modern writers.

Rondeletius was also acquainted with this genus and its anatomical structure, but from his rude figures the exact species cannot be determined: he calls it *Menthula marina.*

Linnæus, in his fourth edition of his Systema Naturæ, has converted the name given by Aristotle, *Thethys*; and in his sixth edition he has confused the *Thethys* now so named with the *Ascidiæ.*

Bohatch* and Plancus†, in their works, have described and represented them with exactitude under the name *Thethyrium.*

Baster‡ has also well distinguished this genus, and names it *Ascidia,* which he derives from ἀσκὸς, a pouch or budget. He has with great exactness shown its affinity with the *Ostrea,* oyster, in its anatomical structure.

Pallas§ proposes the reunion of *Thethyrium* with *Ascidium,* from which Linnæus, in his twelfth edition, has given the name *Ascidia*: it was in this edition that he has referred all the inhabitants of the class *Ginglymoconche,* Bivalves, to the genus which he names *Thethys.*

Baster and Pallas have both of them observed the affinity of the *Ostrea* (oyster) with *Ascidia.*

The bodies of the species are more or less cylindric, having two cylindric tubes situated at the upper part of the sac: both of them can be withdrawn at the will of the animal. One of them is always placed on the summit of the sac: this takes in the water, and conveys it to the branchial cavity; and by the same tube the animal rejects the water and renews it, when it requires food, or water for respiration: when irritated, it throws up the water several inches.

The second tube is generally placed a little lower than the other; through this it also rejects the water received by the other tube: this tube contains the rectum and the organs of generation; it has no communication with the branchial cavity.

The integument is generally cartilaginous; and is always transparent, varying in thickness: it is well-organized, and receives from the body, properly so called, the branches of the arteries and the veins, forming a most elegant network, which can be traced by the naked eye.

Besides this outer integument, there is an inner one, formed by the reflection of the outer one through the tubes, which thus forms a second integument, which is very thin and serous.

The body, properly so called, is suspended in the cavity of the sac, and is always less voluminous than the body itself (which Cuvier thinks may probably contain, when the animal is alive, the serum secreted from the inner integuments): it has an entire tunic with an exterior serous lamina, which continues with the reflected membrane above mentioned; its inner surface is composed of a muscular tissue with innumerable ramifications of nerves and veins; to this tunic the principal nervous ganglion adheres.

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* *Animalia marina,* pl. 10.

† *De Conchis minus notis,* pl. 5 & 7.

‡ *Opuscula subseciva.*

§ *Miscellanea Zoologica,* p. 74.

The upper tube, which opens on the upper part of the sac, contains only the upper part of the branchial cavity, and has no communication with the other tube; but its inner surface extends to the other tunic, which contains the extremities of the organs of generation and the rectum.

All the viscera are enveloped in a peculiar peritoneum, and so is the heart in its pericardium; hence the body, properly so called, is divided into three cavities; that of the branchiæ, which communicates with the upper aperture of the tube, at the bottom of which the mouth opens; that of the peritoneum, which does not communicate with the exterior by itself, but which is traversed by the intestinal tube, at which the commencement of the communication of the branchial cavity above by the rectum at the hinder tube, is short: the covering of the pericardium has no mediate or intermediate communication with its exterior.

The branchial cavity is a large sac, which receives the water containing minute animals, on which it feeds, and which is afterwards rejected by the respiratory tube.

It is very difficult to decide whether the respiratory openings are in the mouth or in the œsophagus. Cuvier thinks that the superior tube, and the pharynx or cardia, which has been termed the mouth, should retain that denomination more justly, because the same parts in the Oysters and in all the Bivalves have a similar orifice.

The branchial cavity has a sort of neck or tube of introduction, which is more straight than itself, in which the respiratory tissue does not extend; it is furnished with a range of fleshy filaments or very fine tentacles, which no doubt is to guide the animal to chase its food. "It is not impossible," says Cuvier, "that on certain occasions the Ascidiæ reserve this orifice of their branchiæ, that the tentacles may seem to be outside, and that this character may be taken in distinguishing the species."

The branchial cavity is a large sac flattened at its sides, varying much in diameter, depth and form, in the different species.

However different the form and disposition of the sac, the internal tissue is always the same: it consists of an infinity of little vessels, which cross each other at right angles in quadrangular masses. When viewed attentively, we perceive small vessels coming from the transverse ones, which unite by two extremities to the great branches, which are vertical, each of which pass one of the sides, or at least the edges of the sac: we must therefore conclude that one is the branchial vein, the other the branchial artery; one of these is near to the heart: the valvules are perceived with difficulty; and doubtless the blood does not pass through this branch of the heart: the opposite trunk is sometimes double, and receives the veins of the body: in fact, there are many vascular filaments; but whether they go to the general tunic of the body or the general tunic of the viscera, is extremely doubtful.

The left ventricle is aortic, but has no auricle at the reunion of the vena cava with the pulmonary artery. This ventricle or aortic heart is not always easily to be seen.

The branchiæ are simply oblong, are situated towards the bottom of the sac, and are consequently equally as long as the body: but when the branchiæ are shorter than the body, they are found in the middle of the tunic: the branchiæ are recurved, and are always situated in the middle of the tunic of the body.

In general the position of the heart is determined by the position of the mouth, and more especially by that of the rectum: its form is oblong, narrower at each extremity; its substance is extremely thin and transparent; so much so, that it is sometimes difficult to distinguish it in the middle of its pericardium: at one extremity it receives the trunk of the branchial veins; on the other, the aorta, which distributes blood all over the body.

The mouth is placed at the bottom of the branchial cavity; this cavity penetrates near the bottom of the tunic, and at this part the mouth is placed.

The mouth is a simple round aperture, which in some species is divided into grooves or short filaments, but has no lip or tentacles properly so called.

The position of the mouth determines the position and the direction of the œsophagus, and that of the stomach. The œsophagus is short, and longitudinally plicated; the stomach is simple, moderately dilated, with slightly elevated ridges, and its sides are pierced for receiving the bill: the intestine is simple, without cæca, and has never more than one replication.

They are nourished by very minute animals, that enter with the water into the branchial cavity. Cuvier has observed the débris of small Crustacea which had wounded the thin delicate tissue, which he therefore infers is not the natural food they generally feed on.

The ovarium is situated between the reflection of the intestine with the liver; it is a granular whitish organ. The oviduct is generally very much undulated, and follows the course of the rectum, and terminates near its extremity: this position is very analogous to that in which the eggs pass behind the upper part of the branchiæ in the Bivalves (*Ginglymoconcha*).

The rectum terminates at the upper tube, and it is not impossible that the seminal liquor passed by its excreting conduit very probably fecundates the eggs.

The part of the nervous system that is most visible consists of an oblong ganglion situated in the substance of the external tunic near the branchial tube; it receives two branches from a nervous ring which encircles the œsophagus. The nervous system, according to Cuvier's observations, varies in all the species that he has dissected: it will be evident to those who will look over the synopsis of the species that inhabit our seas, that the aperture of the mouth varies much in the notches, undulations, &c.; and if more minutely examined by dissection, they would at least form sections, and probably genera.

ORDO I. TETHYDÆ.

The mantle adheres merely to the branchial and anal apertures. The branchiæ or gills are equally broad, and line the interior surface of the cavity of respiration. The branchial aperture is furnished either with a membranaceous denticulated ring or with a circle of filaments.

FAMILY I. TETHYÆ.

Tethyæ, *Savigny.*

The apertures with indistinct rays. The body sessile.

Genus 1. Ascidia.

ΘΕΘΥΡΙΥΜ, *Aristotelis.*
Ascidia, *Baster, Linné, Cuvier, &c.*

The body is cylindric or oval, sessile, generally covered with a coriaceous integument, produced above into two cylindric tubes, the one branchial, the other anal: the apertures of the tubes are undulated, or notched with indistinct rays.

1. Ascidia Britannica. Tab. XI. fig. 1.

The integument smooth, cylindric, testaceous, transparent; its apertures undulated, ornamented with carnation spots. Height three inches; breadth one inch.

Inhabits the British seas; is common on all our coasts in deep water.

2. Ascidia papillosa.

Tethys coriacea, *Bohad. Mar.* 130. t. x. f. 1.
Ascidia papillosa, *Linn. Syst. Nat.* xii. 1087. no. 287; *Cuv. Mém. sur. l'Anat. des Moll.* t. ii. f. 2.

The integument testaceous, smooth and papillated; its apertures acutely emarginated. Height two inches and a half; breadth nearly two inches.

Inhabits the British seas.

3. Ascidia mammillata.

Ascidia mammillata, *Cuvier, Mém. sur l'Anat. des Moll.*

The integument whitish, cylindric, smooth and mammillated; its apertures roundly emarginated. Height nearly three inches; breadth one inch.

Inhabits the British seas, not unfrequently.

4. Ascidia coccinea.

Tethys gelatinosa, *Bohad, Mar.* 131. t. x. f. 3.
Ascidia gelatinosa, *Linn. Syst. Nat.* xii. 1087. no. 287.

The integument cylindric, blood-red, smooth and diaphanous; its apertures acutely acuminated. Height half an inch; breadth three-quarters of an inch.

Inhabits the European and Adriatic seas; is rather rare.

5. Ascidia globosa.

Ascidia globosa, *Montagu MSS.*

The integument brown, punctulated with black; its apertures approximating, the upper one with six, the lower one with five fimbriæ. Size of a nutmeg.

Inhabits the coast of Devonshire and Kent, on sea-weeds.

6. Ascidia Mülleriana.

Ascidia conchilega, *Müll. Zool. Dan.* i. t. lxii. f. 4–6; *Gmel. Syst. Nat.* 3124.

The integument suboval, hyaline, azure-blue; its apertures approximating, acutely emarginated. Size of a small walnut.

Inhabits the British seas everywhere.

7. Ascidia hemisphærica.

Ascidia hemisphærica, *Montagu MSS.*

The integument hemispheric, red; its aperture approximating and acutely emarginated. Height half an inch; breadth three-eighths of an inch.

Inhabits the coasts of Devonshire, Kent, and Wales.

8. Ascidia minuta.

Ascidia minuta, *Montagu MSS.*

The integument reddish, subcylindric, its aperture undulated. Height and breadth five-eighths of an inch.

Inhabits the seas on the western coasts of Devon very rarely: it adheres to shells.

9. Ascidia venosa.

Ascidia venosa, *Müll. Zool. Dan.* ii. t. xxv. f. 1–3; *Gmel. Syst. Nat.* 3124.

The integument elongate-oval, purplish brown; its apertures acutely emarginated.

Inhabits the coast of England, on shells.

10. Ascidia aspersa.

Ascidia aspersa, *Müll. Zool. Dan.* ii. t. lxv. f. 2; *Gmel. Syst. Nat.* 3125.

The integument ovate, greenish yellow, subhyaline; its apertures acutely emarginated. Height one inch and a quarter; breadth nearly half an inch.

Inhabits the European seas; is rather rare.

11. Ascidia lineata.

Ascidia lineata, *Montagu MSS.*

The integument cylindric, orange, with four white lines; the apertures undulated. Height one inch and a quarter; breadth seven-eighths of an inch.

Inhabits the Scottish sea on the shores of Arran, adhering to Fuci, where I found it plentifully.

FAMILY II. BOTRYLLIDÆ.

The body incrusted; the systems furnished with central cavities.

Genus 2. BOTRYLLUS.

Botryllus, *Gærtner, Savigny, Cuvier, Lamarck.*

The body is generally sessile, forming a gelatinous or cartilaginous mass, composed of rounded or elliptical projecting annular systems, situated in a circular cavity, with a distinct circumscription.

The animals are disposed in a simple or many concentric series. The circular branchial aperture has no rays. The intestinal canal is short and narrow, prolonged into an apex or entangled with the membranaceous extensible cavity of the systems. The thorax is oblong; the respiratory covering has no papillæ on its meshes. The abdomen is less than the thorax, is semilateral, and is entangled against the bottom of the cavity containing the branchiæ. The ovaries are two, and are placed under the sides of the branchial sac.

I. *Botrylli stellati.* The Animals of this section are disposed in a single series or range, their bodies are cylindrical, their apertures close together; and the branch of the central cavity is very short.

1. BOTRYLLUS LEACHII.

The body gelatinous, hyaline, with many very serrated systems, with ten or thirty cylindrical animals, with a horizontal stomach.

Botryllus Leachii, Savigny, *Mém. sur les Anim. sans Vert. Resch. sur les Ascidies comp. et simp. Fas.* t. 198. t. xx. f. 3.

Inhabits the British Sea. I found this new species between Dover and Sandgate in Kent.

The body of this species is composed of a gelatinous mass, rather flat, hyaline, tinged with reddish violet, with an infinity of vascular tubes of a yellow colour; the systems are very numerous, very much serrated, composed of ten or twelve individuals, and sometimes twenty-five or thirty; with their summits claviform, variegated with fawn and white; the branchial orifice white, surrounded with a colour of fawn encircled with white; the radial line on passing the two orifices is bordered with white. Diameter two or three inches; the animal three-quarters of a line.

2. Botryllus Schlosseri.

The body gelatinous, semitransparent, with very numerous systems; the animals from twelve to thirty, with their extremities claviform.

Uva marina, *Rondeletii Hist. Pis. Pars* ii. 90.

Alcyonium carnosum, *Schlosser, Act. Ang.* xlix. *Pars* ii. 1757. no. 61 et 449. t. xiv. f. 14. A. B. C; *Borlase, Nat. Hist. Cornw.* 254. t. xv. f. 1–4.

Alcyonium Schlosseri, *Pallas, Elench. Zool.* no. 208; *Linn. Syst. Nat.* xii. 1294. no. 6.

Botryllus Schlosseri, *Savigny, Mém. sur les Anim. sans Vert. Resch. sur les Ascidies comp. et simp. Fas.* 1. t. xx. f. 3.

Inhabits the European seas on the shores of England and France.

The body of this species is composed of a gelatinous semitransparent mass, tinted sea-green or cinereous, the margins of the tubes yellow-ferruginous; the systems very numerous, composed of ten or twelve, twenty or more, with their extremities claviform, variegated with yellow and red; the branchial aperture white, surrounded with large spots of the same colour.

The outer integument is yellow without any visible muscular fibres; tentacular filaments eight as in all the other species in this section; four are shorter than the others and alternate with them; the branchial sac at its upper part with red sinewy chord; the branchiæ are nearly colourless, composed of six transverse vessels and twenty longitudinal vessels more slender than the transverse ones, excepting three which are equally as large as the transverse ones; the branchial vein has no small branches; the stomach is nearly horizontal, channelled, with a small cæcum near the pylorus; this occurs in the following species, but it is in them smaller and more obtuse; the intestine is reflected above and passes under the superior aspect of the stomach; the ovaries are orbicular and white; the right ovarium is situated higher than the left one, and is supported at its inferior margin, under the intestine.

3. Botryllus Savignii. Tab. XI. fig. 1–2.

The body is cartilaginous, transparent, purplish or greenish, with few systems, four, five, eight, nine, ten and eleven.

Inhabits the British Sea; is very rare. During a residence at Sandgate in Kent of nearly four weeks I found but seven specimens.

II. *Botrylli conglomerati.* The animals of this section are disposed in many series or ranges; their apertures not close together.

4. Botryllus conglomeratus.

The body hardish, testaceous, the animals arranged in many oval apertures; with the systems conic, few and small.

Botryllus conglomeratus, *Gærtner apud Pall. Spic. Zool. Fas.* 10. t. iv. f. 6. *a.* A; *Brug. Encycl. Méth.* no. 2.

Alcyonium conglomeratum, *Gmel. Syst. Nat.* 3816. no. 23.

Botryllus conglomeratus, *Savigny, Mém. sur les Anim. sans Vert. Fas.* 1. *Syst. des Ascidies comp. et simp.* 204.

Inhabits the European sea in deep water.

I found several specimens at a place named the Diamond Rock between Hastings and Dover, by trawling in very deep water.

I cannot conclude the descriptions of the species inhabiting our coasts without mentioning that my worthy friend, Julius Cæsar Savigny, has done more for the promotion of minute comparative anatomy than any other individual. What he has done respecting the anatomy of the compound and simple Ascidiæ, and what he is now doing with the class Anellides, will for ever immortalize him.

Cuvier's anatomy of the genus Ascidia is likewise a valuable acquisition to our more minute knowledge of what had been neglected for centuries.

CLASSIS V. GINGLYMACONCHA.

Testacea bivalvia, *Auctorum.*
Acephala, *Cuvier.*
Mollusca conchifera, *Lamarck.*

The body is covered by two shells, which are opened by an internal or external hinge-formed elastic ligament, and are closed by one, two or more muscles and elastic tendons: the hinge is furnished with a few, many or no teeth.

The head is concealed; it consists of a simple round aperture generally furnished with two bilobate lips; it has neither eyes, tentacles nor maxillæ (or jaws).

The two branchiæ, which are thin and reticulated, are placed at the sides of the abdomen, and are covered by lobes of the mantle.

The mantle covers the body; its two thin lobes protect the branchiæ, and it is generally produced posteriorly into two elastic respiratory tubes.

The foot is situated anteriorly, arising from the extremity of the abdomen; it passes in and out between the anterior junction of the mantle.

The sex is androgynous, ovo-viviparous.

General Observations on this Class.

The animals of this class have no apparent head, but merely a mouth with a rounded aperture, and two bilobate lips concealed at the bottom of the replication of the mantle: it has no maxillæ or jaws, no tongue, tentacula or eyes; it feeds on the animalcules which are brought in with the water which serves for respiration; the œsophagus is extremely short; it is dilated into one, and sometimes into two stomachs; the intestines vary much in length and diameter; they surround the liver, which is very large; the bile passes into them generally by many small apertures.

The mantle is generally folded twice, and covers the body; its lobes frequently unite anteriorly, but are sometimes open for the exit of the foot.

They are all furnished with two shells or valves, the hinge of which is furnished with an internal or external one hinge-shaped ligament which causes the valves to open, even when the animal is removed from it; the valves are closed by one or two muscles and two elastic tendons; there is likewise a muscle on each of the valves posteriorly for withdrawing the respiratory tubes; in the Pinnadæ the abdomen and the foot are supported by two longitudinal muscles, which arise near the base of the posterior abductor muscles (which seem to be two); unite before they join the foot, sending out posteriorly and obliquely on each side six or seven distinct branches; and after again passing the foot, they separate and are inserted near the base of the anterior adductor muscles (see Pl. IV. fig. 4): these muscles form peculiar impressions not found in any other of the Families.

The brain is situated over the mouth, and is composed of two or three ganglions.

The branchiæ are almost always composed of two elongated foliations or rather lamellæ, beautifully reticulated with the venous and arterial vessels, between which the water passes for the purpose of respiration: from these branchiæ the blood returns to the heart, which is generally a mere ventricle which sends the blood to every part of the body; it returns by a strong pulmonary artery which performs the functions of another ventricle.

All these animals fecundate themselves; the young ones are innumerable: they remain for a certain time in cells above the upper junctions of the mantle (which serves the functions of a uterus and oviduct combined), until the animals are fit to pass out of it into the world.

They are all aquatic.

All the animals forming this class are generally known by the names of *bivalve shells*, from having their bodies protected by a shell on each side of the body; these valves are most generally connected together at their hinge by an elastic ligament, which has the power of throwing open the valves, even when the animal is removed from it: they are partially closed by the action of one or two adductor muscles, which rarely act without the aid of one or two adductor ligaments, which are sometimes, but very rarely wanting*. The lamella of which these shells are formed is secreted from the serous surface of the mantle, by which they are increased in their size during the growth of the animal.

Their mouth is furnished with two lips, the angles of which are produced into lobes, which hang over one another. They have no eyes, tentacles nor maxillæ (or jaws).

The organs of respiration consist of four lamellæ finely reticulated, which are placed between the margins of the mantle; the mantle is often attached to the anterior lower margin of the shell, an opening being left for the passage of water for respiration and nutrition; the upper one for the exit of the excrement, as in the class Ascidia.

Almost all the genera are furnished with a foot to enable them to move; in many genera they are immovably attached to their shells, and those who need not a foot either want it entirely or have it in a very slight degree of development.

Several of the genera have a byssus, consisting of an unravelled tendon, attached to the base of the foot, by which they adhere to other bodies.

Mr. Wood, in the Introduction to his work on General Conchology, asserts that those without syphons, and which have a foot, such as oysters, are of the lowest order of animated beings; and yet he says that they are all mollusca, and that the dilatations of the mantle which covers the back of the genus Cypræa are wings. I would ask him from what work he has founded these ideas, which are totally incorrect?—and again, in his Advertisement to the same work, "that, notwithstanding the attempts which have been made to form a more perfect arrangement, the structure raised by the great Swedish naturalist still remains unshaken?" I most willingly allow that it would certainly have remained so, had no comparative anatomists discovered and corrected the errors of that immortal naturalist.

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* In the year 1815 I made known to the Philomathic Society in Paris this discovery, which was published by Professor H. D. De Blainville in the Journal de Physique of the same year.

In the following pages it is my intention to make use of such terms, when describing the species of shells, as indicate the parts which relate to the animal when alive ; without using that absurd nomenclature used by the older naturalists, which is totally rejected by all those who are not absolutely blinded by their zeal for maintaining the Linnæan school.

It is to the immortal Poli, that we are indebted for the minute and accurate discoveries which have been made in the anatomical structure and economy of this class.

Familiarum Ginglymochinchorum Tabula Artificialis.

ORDO I. DIMYA.

Testæ musculis tendonibusque duobus adductoribus instructæ.

A. Valvæ antè et posticè hiantes. Pes non byssiferus.

Ligamentum nullum. Valvarum umbones reflexi et cancellati		1. Pholadidæ.
Ligamentum internum. Cardo	edentulus	5. Myadæ.
	dente uno aut duobus in utrâque valvâ	6. Pandoradæ.
	lamellâ in utrâque valvâ; in unâ solum; aut nullâ	7. Amphidesmidæ
Ligamentum Ginglymoidi externum. Testæ	subelongatæ	2. Pholeobiadæ.
	valdè elongatæ aut longissimæ	3. Solenidæ.
	ovatæ compressæ	4. Azoridæ.

B. Valva omninò clausa. Pes non byssiferus.

Ligamentum internum. Cardo angulatus	paucidentatus	9. Mactradæ.
	subtriangularis	8. Nuculadæ.
	circularis	14. Pectunculidæ.
Ligamentum externum. Cardo	angulatus	10. Veneridæ.
	rectus	11. Unionidæ.

C. Valva omninò clausa. Pes ad basin byssiferus.

Ligamentum internum. Cardo rectus	edentulus	12. Pinnadæ.
	multidentatus	13. Arcadæ.

ORDO II. MONOMYA.

Testæ musculo et tendone uno adductoribus instructæ.

A. Pes ad apicem byssiferus.

Testæ	inæquivalves. Cardo rectus	1. Aviculadæ.
	æquivalves. Cardo rectus	2. Pectinidæ.

B. Pes nullus.

Testæ inæquivalves. Valva integra. Cardo rectus	3. Ostreadæ.

ORDO III. TRIMYA.

Testæ musculis tribus et tendonibus adductoribus minimis in musculo adductore antico sepultis. Pes nullus	Anomyadæ.

FAMILY I. PHOLADIDÆ.

Pholas, *Auctorum.*
Hypogæa, *Poli.*

Shell elongate, equivalve or slightly inequivalve, generally gaping anteriorly, but rarely behind; internally, under the umbones, bearing a shelly process or apophysis. Umbones anterior, generally concealed by the reflection of the shell. Cardinal ligament minute or wanting. Hinge without teeth. Epidermis thin, covering the respiratory tubes, which are very long, joined together, equally long, with their extremities obtuse. Mantle everywhere united, excepting at the exit of the foot. Foot very short, ovately depressed, marked with an impression at its extremity, as if it had been stabbed. Lip with very long, slender and acuminate lobes. Branchiæ very long and slender, produced to the middle of the lower tube. Abdomen acuminate behind. Anterior adductor muscle attached to the reflected part of the shell, and consequently performing the function of opening the valves.

All the animals of this family inhabit the sea; perforating rocks, shells or wood.

The principal characters of this Family consist in the reflection of the shell over or before the umbones; the consequent extraordinary change in the function of the anterior abductor muscle, which supplies the office of the cardinal ligament, which is either wanting or very diminutive in size; the presence of a process or apophysis, in each valve, arising from the hollow of the umbones; and lastly the supplementary pieces of shell, which protect the anterior abductor muscle, or serve to give greater strength to the dorsal portions of the epidermis.

These supplementary shells I have named from their actual position, *umbonic,* when they cover the umbones; *post-umbonic,* when situated behind the umbones; *dorsal,* when covering the dorsal aspect; and *ventral,* when protecting the inferior aspect of the animal: of the latter, we possess no indigenous example.

The presence of these supplementary pieces, or as they are termed, accessory valves, has caused this family to be excluded from what in common language are denominated *bivalves*, and to be arranged along with *Chitonidæ*, a family of the class *Gasteropoda*, and associated with the class *Cirripedes* or *Barnacles*, which has not even the slightest connection with the molluscous type. This almost incredible confusion presents to our view but one of those innumerable inconsistencies, committed by Linnæus, and of which the most zealous admirers will hardly acquit the immortal author of the misnamed Systema Naturæ.

The Pholadidæ inhabit the sea, and reside in perforations which they make, by a power by no means understood, in calcareous rocks, slate, hard clay, or wood. These hollows have only a small opening for the exit of their respiratory tubes. All the species are phosphorescent, and their shells invariably of a white colour.

Stirpium et Generum Synopsis.

Stirps 1. Testa anticè infrà latè emarginata.

* *Testa parte emarginatâ apertâ.*

Testæ accessoriæ 4: 2 umbonicæ: 1 postumbonica: 1 dorsalis	1. PHOLAS.
Testa accessoria 1: postumbonica, bifida, parva..........................	2. ZIRPHÆA.
Testa accessoria 1: postumbonica, longissima umbones tegens	3. ANCHOMASA.

** *Testa parte emarginatâ nonnunquam clausâ.*

Testæ accessoriæ 2: umbonicæ inæquales, parce angulum delinientes	4. CADMUSIA.

Stirps 2. Testa anticè integra.

Testa accessoria 1: postumbonica, anticè producta, umbones tegens	5. BARNIA.

Genus 1. PHOLAS.

Pholas, *Auctorum.*

Shell oblong below, archedly notched, gaping behind; the reflected part hollow below and cancellated; the hollows between the cancelli terminating in perforations; the accessory shells four; two, one on the right, the other on the left, cover the anterior abductor muscle; the third is placed behind the umbones; the fourth is attached to the dorsal membrane.

This genus is distinguished from all the other British ones of the family by the cancelli terminating in perforations.

PHOLAS DACTYLUS.

Shell white, cancellated, the cancelli muricated, especially anteriorly, but not at all behind.

The animal and its tracheal tubes white, spotted with pale bluish black; the foot saffron colour; the tracheal tubes spotted with blood-red. Length nine inches; breadth two and a half.

Pholas Dactylus, *Rond. Test.* xxii. f. 2; *Linné, Faun. Suec.* 2124; *Syst. Nat.* 515. no. 2124; *Gmel. Syst. Nat.* 3214. no. 1; *Penn. Brit. Zool.* iv. 76. t. cxviii. f. 10; *Poli, Test.* i. 40. t. vii. f. 1. *ad* 11; *Donov. Brit. Shells,* t. cxviii.; *Mont. Test. Brit.* 20; *M. & R. Trans. Linn. Soc.* viii. 30; *Flem. Edinb. Encycl.* vii. 100; *Dill. Desc. Cat.* 35; *Turt. Conch. Dict.* 143; *Lam. Hist. Nat. des Anim. sans Vert.* v. 444.

Pholas muricatus, *Da Costa, Brit. Conch.* 144. t. xvi. f. 2.

Pholas hians, *Pult. Cat. Dorset.* 26. t. iii. f. 2.

Hypogæa verrucosa, *Poli, Test.* i. 43. t. viii. f. 1–11.

Animal et tubi albi cæruleo-nigro pallido maculati; pede pallide croceo; tubis trachealibus apice sanguineo maculatis.

Habitat in marmore, cretâ et ligno frequenter.

Pholas Dactylus inhabits the shores of the European ocean; on our coasts, especially in the chalky districts, it occurs in great abundance; it perforates marble, wood, sandstone and indurated slate-rocks: at Hastings, in the indurated state, I found a variety with the anterior margin of the shell much reflexed and fringed with spines in great abundance, and at first believed that I had found a new species; but having some doubts whether it might be distinct or not, I hired a man and a boy with wedges and sledge-hammers, with which we broke the rocks and found several hundreds of specimens, by which I was enabled to prove, by comparing them, that it is a mere variety.

The flesh of this species is greatly esteemed as delicious food by the inhabitants of the shores of the Mediterranean, who pay a high price for it. I am informed by my friend Dr. Goodall that it is also eaten in Wales. I can myself vouch for the truth of what I have here stated; for during a short residence at Hastings I have eat them stewed, in company with some friends of mine, and we all agreed that the Mediterraneans had an excellent taste.

Genus 2. ZIRPHÆA.

Shells subovate, with a rounded notch below anteriorly, gaping behind; each valve has an impressed oblique line which forms an internal rib; the reflected portion hollow and simple beneath; one very short, situated behind the umbones, and not covering the anterior adductor muscle.

ZIRPHÆA CRISPATA.

Shell nearly as far as its middle, especially anteriorly, muricated, above subcancellated, with waved concentric striæ below; the epidermis very pale fuscous.

The animal whitish; its tracheal tubes punctulated with red.

Pholas crispata, *Linn. Syst. Nat.* xii. 516. no. 2125.

Mya crispata, *Linn. Faun. Suec.* 2125.

Solen crispus, *Gmel. Syst. Nat.* 3216. no. 6; *Penn. Brit. Zool.* iv. 77. t. xl. f. 12; *Pult. Cat. Dors.* 27. t. iii. f. 3, 4; *Chem. Conch.* viii. t. cii. f. 872 *ad* 174; *Brug. Encycl. Méthod.* 169. t. clxiv. f. 5, 6, 7; *Donov. Brit. Shells*, t. lvii.; *Mont. Test. Brit.* 23; *M. & R. Trans. Linn. Soc.* viii. 33; *Flem. Edinb. Encycl.* vii. 100; *Dill. Desc. Cat.* 40; *Turt.*

Conch. Dict. 146; *Lam. Hist. Nat. des Anim. sans Vert.* v. 445.

Pholas bifrons, *Da Costa, Brit. Conch.* 242. t. xv. f. 4.

Pholas parvus, *Donov. Brit. Shells,* t. lxix. Testa junior.

This species is extremely common on most of our chalky coasts, and is equally so in Scotland, where it is found in bituminous slate and hard clay. Length three inches and a half; height one inch and three quarters.

Genus 3. ANCHOMASA.

The shells oblong, with a rounded notch anteriorly below, gaping behind; the reflected part of each valve hollow beneath and simple: there is but one accessory shell, which covers the anterior adductor muscle entirely: between the umbones is an abrupt obtuse process in each valve.

ANCHOMASA PENNANTIANA.

Shells smooth posteriorly; behind the middle slightly, before the middle strongly cancellated; the angles of the cancelli pointed; the epidermis white or pale testaceous.

Pholas parva, *Penn. Brit. Zool.* iv. 77. t. xl. f. 13; *Mont. Test. Brit.* 22. t. i. f. 7, 8; *Flem. Edinb. Encycl.* vii. 100; *Dill. Desc. Cat.* 38; *M. & R. Trans. Linn. Soc.* viii. 33; *Turt. Conch. Dict.* 142; *Wood, Gen. Conch.* i. 82; *Turt. Conch. Dict.* 143.

Pholas Dactyloïdes, *Lam. Hist. Nat. des Anim. sans Vert.* v. 445.

This species is very common in the Kingsbridge Estuary, where it perforates wood: it has been found at Torbay and in other parts of the western coasts; but I have myself found it larger and more abundant in the clay-slate rocks on the coast of Sussex near Hastings. Length two inches; height three-quarters of an inch.

The abdomen is pale bluish-black; the tracheal tubes fuscous, their extremities ciliated with pale violet.

Genus 4. CADMUSIA. Tab. XI ~~XII.~~ figs. 1, 2.

The shells short, equivalve: that part of the epidermis covering the respiratory tubes is testaceous; the accessory valves two, unequal, post-umbonic, delineating an angle. The tracheal tubes short. The foot short and obtuse.

CADMUSIA SOLANDERIA. Tab. XI ~~XII.~~ figs. 1, 2.

The shell anteriorly smooth, with elevated, narrow, rather rough striæ; the epidermis iridescent anteriorly below, behind and on the respiratory tubes fulvous olive.

Pholas papyraceus, *Solander, MSS.*

Var. *α*. The striæ of the anterior part of the shell undulated; the oblique line simple.

Var. *β*. The striæ of the anterior part of the shell simple; the oblique line wrinkled (fig. 2).

Inhabits the western coasts of Devon, perforating rocks.

Having in the collection which I have presented to the British Museum a complete series, from the youngest specimens to the adult ones, and having likewise a complete series of all the varieties of this species, I am confident that no one who will take the trouble of examining this series but will agree with me in considering them as mere varieties, forming but one species.

I have placed in the British Museum some exotic species, forming two or three genera, having that part of the epidermis which covers their respiratory tubes shelly, as in this British species.

I have named this species in honour of Dr. Solander; and should not have changed its name, had it not been equally applicable to species of other genera: his collection is in the Museum of the Linnæan Society.

Genus 5. BARNIA.

Shell oblong (the left valve a little longer than the right valve), anteriorly entire and closed, gaping behind; the reflected part hollow beneath and simple. Hinge in each valve with an oblique process; that of the left side largest. One large accessory shell covers the anterior adductor muscle entirely.

BARNIA CANDIDA.

The shells with radiating and concentric elevated striæ, which at their junctions, especially anteriorly, have elevated spines. Length two inches and three quarters; height three-quarters of an inch.

Pholas candida, *Linn. Syst. Nat.* xii. 1111. no. 22; *Penn. Brit. Zool.* iv. 76. t. xxxix. f. 11; *Da Costa, Brit. Conch.* 246; *Pult. Cat. Dorset.* 26. t. i. f. 12; *Donov. Brit. Shells,* t. cxxxii.; *Mont. Test. Brit.* 25; *Flem. Edinb. Encycl.* vii. 100; *Dill. Desc. Cat.* 36; *Turt. Conch. Dict.* 144; *Wood, Gen. Conch.* i. 78. t. xiv. f. 3, 4.

This species is extremely common on the south-western coasts of England. It perforates wood in the Kingsbridge Estuary, and the red sandstone at Dawlish. Length from two to two and three-quarter inches; height half an inch.

I have never seen the animal of this species.

FAMILY II. PHOLEOBIADÆ.

Shell equivalve, subelongate, gaping either anteriorly or posteriorly. Umbones anterior; hinge ligament hinge-shaped; hinge generally without teeth; epidermis thin, covering the respiratory tubes, which are subcylindric, equal, very long and attached to each other; foot very short, ovately depressed; orbicular muscles entirely united, excepting at the exit of the foot.

All the genera of this family inhabit the sea, and either perforate rocks or shells, or reside in the cavities formed by other animals, or amongst the thick roots of marine plants.

Synopsis Generum.

Stirps 1. Testæ infrà anticè latè emarginatæ. Cardo edentulus	6. Gastrochæna.
Stirps 2. Testæ integræ. Cardo edentulus	7. Saxicava.
Cardo in utrâque valvâ dente obtusiusculo	8. Hiatella.

Genus 6. Gastrochæna.

Gastrochæna, *Spengler, Cuvier, Lamarck.*

The shells equivalve, ovate, truncated below anteriorly and gaping, closed behind; the umbones nearly terminal, anterior simple; the ligament external; the hinge without teeth; the valves connected to each other behind the ligament by a membrane. The respiratory tubes are very long, rounded, connected, their extremities cirrated.

The Gastrochænæ inhabit the sea; they perforate shells and limestone rocks, lining their perforations with testaceous matter, which is often produced beyond the perforations, covering half of their respiratory tubes.

Gastrochæna modiolina. Tab. III. fig. 3.

Shell light brown, fragile, thin, opaque, smooth, concentrically striated. Length of the shell one inch; height an inch and a half.

Mya dubia, *Penn. Brit. Zool.* iv. 82. t. xliv.; *M. & R. Trans. Linn. Soc.* viii. 33; *Turt. Conch. Dict.* 104.

Pholas Faba, *Pult. Cat. Dorset.* 27.

Pholas pusilla, *Poli, Test.* i. 50. t. vii. f. 12, 13.

Mya pholadia, *Mont. Test. Brit.* 28; *Flem. Edinb. Encycl.* vii. 87.

Mytilus ambiguus, *Dill. Desc. Cat.* 304.

Gastrochæna modiolina, *Lam. Hist. Nat. des Anim. sans Vert.* v. 447.

Animal whitish, the fringes of the tubes of respiration brown, inclining to purple.

Inhabits the south-western coasts of England, where it is found burrowed in old oyster shells and detached portions of lime rock; it is very abundant in the Plymouth Sound and in Torbay.

Genus 7. SAXICAVA.

Saxicava, *Lamarck.*
Bissomie, *Cuvier.*
Pholeobia, *Leach.*

The shell equivalve, oblong, entire, short anteriorly, gaping behind; the umbones simple, situated rather anteriorly; the ligament hinge-shaped external; the hinge without teeth; the valves behind the hinge ligament united by a membrane.

The respiratory tubes of the animal are moderately and unequally long, united to each other and ciliated at their extremities; the foot very much elongated and very narrow.

1. SAXICAVA RUGOSA.

Shells rugose, antiquated, rounded anteriorly and posteriorly, and concentrically striated. Length of the shell two inches; height one inch.

Mytilus rugosus, *Linn. Syst. Nat.* xii. 1156; *Penn. Brit. Zool.* iv. 110. t. lxv. f. 72; *Mont. Test. Brit.* 164; *M. & R. Trans. Linn. Soc.* viii. 105; *Flem. Edinb. Encycl.* vii. 99; *Dill. Desc. Cat.* 304; *Turt. Conch. Dict.* 113.

Saxicava rugosa, *Lam. Hist. Nat. des Anim. sans Vert.* v. 501.

The mantle within the valves saffron-coloured; the tracheal tubes clay-coloured, margined with pale violet, their extremities crimson.

Inhabits the European ocean; is found on most of our coasts burrowing in limestone or concealing itself amongst the roots of *Fucus digitatus*, or other marine plants.

2. SAXICAVA PHOLADIS.

Shells pale fuscous, oblong, antiquated, transversely rugose, rounded behind. Length of the shell one inch and a half.

Mytilus pholadis, *Müll. Zool. Dan.* iii. t. lxxxvii. f. 1–3; *Gmel. Syst. Nat.* 3357.

Bissomie, *Cuv. Règ. Anim.* ii. 490.

Saxicava pholadis, *Lam. Hist. Nat. des Anim. sans Vert.* v. 502.

Inhabits the northern seas of Europe.

I have described this species from three or four specimens taken between the islands of Bute and Arran in the collection of Mr. Knox of Glasgow; it had all the external characters of Mytilus, but as he permitted me to open one of the specimens with the animal in it, I can assure my readers that it had no byssus.

Genus 8. HIATELLA.

Hiatella, *Daudin, Cuvier, Lamarck.*

Cardita, *Bruguière.*

Shell equivalve, oblong, entire, scarcely gaping behind, closed before; umbones simple, placed near the anterior margin; cardinal ligament external, hinge-shaped; hinge with one tooth in each valve; the valves behind the cardinal ligament connected together by a membrane. The tracheal tubes of the animal long, cylindric, and connected together.

HIATELLA SPINOSA.

Shells whitish, transversely striated and wrinkled (with its left side longest, the apex truncated); with two spiny lines extending from the umbones to its hinder margin. Length of the shell one inch.

Solen minutus, *Linn. Syst. Nat.* xii. 1115; *Chem. Conch.* vi. t. vi. f. 51, 52; *Mont. Test. Brit.* 52. t. i. f. 4; *M. & R. Trans. Linn. Soc.* viii. 47; *Flem. Edinb. Encycl.* vii. 89; *Wood, Gen. Conch.* i. 139. t. xxiv. f. 5, 6; *Dill. Desc. Cat.* 69; *Turt. Conch. Dict.* 161.

Mya arctica, *O. Fabr. Faun. Grœnl.* 407.

Cardita arctica, *Brug. Dict.* no. 11; *Encycl. Méthod.* t. ccxxxiv. f. 4. *a. b.*

Mytilus præcisus, *Mont. Test. Brit.* 165. t. iv. f. 2.

Hiatella, *Daud. Bosc. Coq.* iii. 120. t. xxi.

Hiatella arctica, *Lam. Hist. Nat. des Anim. sans Vert.* vi. partic. i. 30.

Var. *β*. Shell with its epidermis reddish.

Inhabits the European seas amongst the roots of marine plants, or perforates marble.

FAMILY III. SOLENIDÆ.

ΣΩΛΗΝ, *Aristotelis, Athenæi, Dioscoridis.*
Solen, *Plinii et Auctorum.*

The shells elongated, equivalve, gaping before and behind; the umbones small, anterior terminal, at least placed before the middle; the ligament external, hinge-shaped; the hinge toothed; the epidermis thin. The respiratory tubes are either joined or coalescent; the foot is either abruptly or gradually elevate.

All the animals of this family inhabit the sea.

Synopsis Generum.

Testæ longissimæ, subcompressæ; cardine terminali; sinistro 2, dextro 1-dentato . .	9. Solen.
Testæ longissimæ, rectæ, subcylindricæ; cardine terminali, in utrâque valvâ 1-dentato	10. Listera.
Testæ longæ, compressæ; cardine subterminali	11. Phaxas.
Testæ longæ, compressæ; cardine paulo ante medium locato	12. Artusius.

Genus 9. Solen.

The shells very long and rather compressed; the hinge nearly terminal, anteriorly with two teeth in the left, one in the right. The tracheal tubes are equal and joined together, and ciliated at their extremities; the branchiæ or gills very much elongated; the foot gradually elevated; its apex obliquely truncated.

The Solenes, or, as they are commonly denominated, Razor-shells or Razor-fish, inhabit sand or hard mud on the sea-shore, far below high-water mark, and when disturbed eject water with considerable force: when placed in moist sand they bury themselves with great rapidity; at low water they descend beneath the surface of the ground. Many exotic species, besides *Solen siliqua,* are taken for the table, and also in Great Britain by means of a barbed spear, which is thrust suddenly into their shells, and immediately turned, by which they are easily captured; they are also captured by digging to the depth of two feet, or may be excited to rise to the surface by pouring a little salt water or salt into their holes, which are easily discovered by observing a dimple on the sand which contains them.

1. SOLEN ENSIS.

Shell very smooth, slightly arched, rounded before and behind; the epidermis olive-brown or testaceous, sometimes spotted with brown. The tracheal tubes very short and contiguous; the orbicular muscle of the mantle coalescing before and behind its middle; the central cavity cirrated; the foot rounded, moderately long, reddish. Length six inches; height three-fourths of an inch.

Solen Ensis, *Linn. Syst. Nat.* xii. 1114; *Lister, Anim. Angl. App.* t. ii. f. 9; *Penn. Brit. Zool.* iv. 83. t. xlv. f. 20; *Schroet. Conch.* ii. 626. t. vii. f. 7; *Brug. Encycl. Méthod.* t. xxiii. f. 3; t. ccxxiii. f. 1, 2; *Da Costa, Brit. Conch.* 237; *Poli, Test.* i. 9. t. x. f. 11 *ad* 16; *Pult. Cat. Dorset.* 28. t. iv. f. 3; *Donov. Brit. Shells,* t. 1; *Mont. Test. Brit.* 48; *M. & R. Trans. Linn. Soc.* viii. 44; *Wood, Gen. Conch.* i. 122. t. xxviii. f. 1, 2; *Flem. Edinb. Encycl.* vii. 89; *Lam. Hist. Nat. des Anim. sans Vert.* v. 452; *Dill. Desc. Cat.* 59; *Turt. Conch. Dict.* 158.

Hypogæa falcata, *Poli, Test.* i. 18.

This species is generally found on all our open sandy coasts, and is very frequently thrown after storms. Young specimens are more straight, and generally a little narrower behind; and are often of a very pale green colour.

2. SOLEN SILIQUA.

Shell smooth, straight, anteriorly rounded and slightly emarginated; obliquely truncated behind, with its angles rounded. Epidermis olive, more or less tinted with brown. The respiratory tubes extremely short; the foot rounded and much-elongated; the orbicular muscles of the mantle coalesce behind the middle of the mantle, and is only cirrated at the commencement of its junction. Length eight inches; height one inch and three-quarters.

Solen Siliqua, *Lister, Anim. Ang.* t. v. f. 57; *Linn. Syst. Nat.* xii. 1113; *Gmel. Syst. Nat.* 3223; *Knorr, Verg.* vi. t. vii. f. 1; *Penn. Brit. Zool.* iv. 83. t. xlv. f. 20; *Poli, Test.* i. 9. t. x. f. 11 *ad* 16; *Da Costa, Brit. Conch.* 253. t. xvii. f. 5; *Brug. Encycl. Méthod.* t. ccxxii. f. 2 *b. c.*; *Mont. Test. Brit.* 46; *M. & R. Trans. Linn. Soc.* viii. 43; *Flem. Edinb. Encycl.* vii. 89; *Wood, Gen. Conch.* i. 118. t. xxvi. f. 1, 2; *Lam. Hist. Nat. des Anim. sans Vert.* v. 451; *Dill. Desc. Cat.* 58; *Turt. Conch. Dict.* 158.

Solen Novacula, *Mont. Test. Brit.* 47. Varietas monstrosa.

Hypogæa crinita, *Poli, Test.* i. 12. t. i. f. 47.

This species is very common in most of the bays and estuaries on our coasts, inhabiting sand and mud.

The *Solen Novacula* of Montagu is only a monstrous accidental variety of this species, wanting the cardinal tooth in its left valve.

Genus 10. LISTERA.

The shell very long, somewhat cylindric, straight; the hinge nearly terminal; in each valve with one tooth. The tracheal tubes are equal and joined, but not cirrated; distinctly projecting beyond the margin of the shells: the branchiæ are very much elongated; the foot clubbed.

LISTERA VAGINA.

Shell straight, somewhat truncated behind; the angles rounded, anteriorly obliquely truncated; its margin thickened, and its angles rounded. Length seven inches; height an inch and a half.

Solen Vagina, *Lister, Conch.* t. ccccix. f. 255; *Appendix,* ccccccccccclvi. f. 5; *Rumph. Mus.* t. xlv. f. M.; *Gualt. Test.* t. xcv. f. D.; *Linn. Syst. Nat.* xii. 1113. no. 33; *Lesser, Testaceoth.* f. 120; *Penn. Brit. Zool.* iv. 83. t. xlvi. f. 21; *Chem. Conch.* vi. t. iv. f. 26 *ad* 28; *Gmel. Syst. Nat.* 3223; *Brug. Encycl. Méthod.* t. ccxxii. f. 1; *Mont. Test. Brit.* 48; *M. & R. Trans. Linn. Soc.* viii. 42; *Flem. Edinb. Encycl.* vii. 89; *Dill. Desc. Cat.* 57; *Turt. Conch. Dict.* 159; *Lam. Hist. Nat. des Anim. sans Vert.* v. 451.

Inhabits the European ocean. It occurs on our coasts in muddy sand; is common in the Kingsbridge Estuary, on the shores of Caermarthen and at Dawlish in Devon.

Genus 11. PHAXAS.

Shell elongate anteriorly and posteriorly rounded; the hinge almost terminal, with one tooth in one valve and two in the other.

PHAXAS PELLUCIDUS.

Shell thin, pellucid, flattened anteriorly and posteriorly, roundedly-attenuated; epidermis greenish brown.

Solen pellucidus, *Penn. Brit. Zool.* iv. 84. t. xlvi. f. 23; *Donov. Brit. Shells,* t. clviii.; *Mont. Test. Brit.* 49; *M. & R. Trans. Linn. Soc.* viii. 44; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 60; *Turt. Conch. Dict.*

Solen Pygmæus, *Lam. Hist. Nat. des Anim. sans Vert.* v. 452.

This species is not at all uncommon on several parts of our coasts, and may be very easily obtained from fishermen who dredge or trawl in deep water off the shores of Swansea, Anglesea, Plymouth, Torbay, Sandgate, and in the Frith of Forth.

I have never been so fortunate as to see the animal, and shall feel extremely obliged to any naturalist who will furnish me with specimens preserved in spirits of wine.

Genus 12. ARTUSIUS.

Solen **, *Poli.*

The shell elongate, rounded anteriorly and posteriorly; the hinge placed a very little before the middle, with two teeth in each valve; the diverging tooth in one valve notched, the superior lappet acute.

The animal with two disjoined tracheal tubes; the foot elongated and abruptly clavate.

ARTUSIUS LEGUMEN.

Shell oblong, straight, narrower anteriorly; the epidermis luteous, inclining to sea-green, with wrinkled rays. Length four and a half inches; height three-quarters of an inch.

Solen Legumen, *Lister, Conch.* t. ccccxx. f. 264; *Linn. Syst. Nat.* xii. 1114. no. 35; *Penn. Brit. Zool.* iv. 84. t. xlvi. f. 24; *Poli, Test.* i. 20. t. ii. f. 15; *Da Costa, Brit. Conch.* 238; *Chem. Conch.* vi. t. v. f. 32 *ad* 34; *Brug. Encycl. Méthod.* t. ccxxv. f. 3; *Pult. Cat. Dorset.* t. iv. f. 4; *Donov. Brit. Shells,* t. liii.; *Mont. Test. Brit.* 50; *M. & R. Trans. Linn. Soc.* viii. 45; *Lam. Hist. Nat. des Anim. sans Vert.* v. 453; *Flem. Edinb. Encycl.* vii. 89; *Dill. Desc. Cat.* 60; *Turt. Conch. Dict.* 161.

Hypogæa Hirudo, *Poli, Test.* i. 20. t. xii. f. 15.

Var. β. The epidermis greenish, with concentrically wrinkled rays.

Var. γ. The epidermis yellowish, with concentrically wrinkled rays.

Inhabits the sandy shores in the open sea; it is very common in Biddeford Bay, Fishguard, Sandersfoot, Pembrokeshire, and on the coast of Caermarthen; and is likewise found plentifully in the south of Ireland. Its common name is *Pod* or *Peascod Shell.*

The foot, abdomen and mantle are strongly tinged with blood-red colour.

FAMILY IV. AZORIDÆ.

Solen, *Auctorum.*

Shell rather elongate, compressed, equivalve, gaping anteriorly and posteriorly. Umbones situated a very little before the middle of the shell; ligament large, exterior and hinge-shaped; hinge toothed. Respiratory tubes annulated, included in one common tube. Foot oval and very large. Branchiæ produced almost to the distant extremity of the lower respiratory tube.

The animals of this Family inhabit the sea, in deep water, especially on a sandy bottom.

Synopsis Generum.

Testæ sublineares, anticè et posticè valdè hiantes. Cardo in utrâque valvâ bidentatus	13. Azor.
Testæ ovales, anticè et posticè paulùm hiantes. Cardo in valvâ sinistrâ unidentatus; dente bifido; in dextrâ bidentatus, dente postico emarginato	14. Gobræus.
Testæ sublineares, anticè et posticè valdè hiantes. Cardo in utrâque valvâ bidentatus	15. Adasius.

Genus 13. Azor.

Shells somewhat linear, gaping much anteriorly and posteriorly. Hinge with two teeth in each valve.

Azor antiquatus.

Shells striated roughly concentrically, rounded before and behind, the under margin broadly excavated or sinuate, with an impression extending obliquely from the umbones to the lower margin. Epidermis white or luteous-brown, elevated into irregular striæ, especially before and behind. Length two inches and a quarter; height one inch.

Solen Cultellus, *Penn. Brit. Zool.* iv. 85. t. lxvi. f. 25; *Dill. Desc. Cat.* 61.

Solen antiquatus, *Pult. Cat. Dorset.* 28; *Mont. Test. Brit.* 52; *M. & R. Trans. Linn. Soc.* viii. 46; *Flem. Edinb. Encycl.* vii. 88; *Lam. Hist. Nat. des Anim. sans Vert.* v. 455; *Wood, Gen. Conch.* i. 125. t. xxiv. f. 3; *Turt. Conch. Dict.* 162.

Inhabits the coasts of Devon and Cornwall. It is found in Salcombe Bay, Milton Sands, in the Plymouth Sound, at Padstow, and at Falmouth; it occurs likewise at Tenby and Swansea, and in Bantry Bay, Ireland. Dr. Fleming found it in Shetland.

Genus 14. GOBRÆUS.

Shell oval, slightly gaping before and behind; hinge in the left valve with one notched tooth; in the right valve with two, the hinder of which is also notched.

GOBRÆUS VARIABILIS.

Shell rounded anteriorly, obliquely truncated behind; the angles rounded; surface concentrically striated, striæ irregular; the colour whitish or yellowish, rayed with rose or violet; epidermis opake, of a saffron-brown colour. Length two and a half, height one and a half inch.

Tellina depressa, *Penn. Brit. Zool.* iv. 87. t. xlvii. f. 27; *Dill. Desc. Cat.* 91.

Tellina variabilis, *Pult. Cat. Dorset.* 29. t. v. f. 1; *Donov. Brit. Shells,* t. lxi. f. 2.

Solen vespertinus, *Brug. Encycl. Méthod.* t. ccxxviii. f. 2; *Chem. Conch.* vi. t. vii. f. 5980. *a, b.*; *Mont. Test. Brit.* 54; *Flem. Edinb. Encycl.* vii. 89; *M. & R. Trans. Linn. Soc.* viii. 47; *Wood, Gen. Conch.* i. 135. t. xxxiii. f. 2–3; *Turt. Conch. Dict.* 163.

This species is rather rare. It occurs on Milton Sands, in Salcombe Bay and in the Sound of Plymouth; at Falmouth and Padstow in Cornwall, and off Tenby in Wales.

In the collection of Mr. Loscombe, I observed a white variety of a young shell, which was dredged up by a trawler, in Torbay.

Genus 15. ADASIUS.

Shell sublinear, rounded and very widely gaping before and behind; hinge in each valve with one tooth. The respiratory tubes are disunited at their extremities.

The type of this genus is the *Solen strigilatus* of Linné.

ADASIUS LOSCOMBEUS.

Shells concentrically striated, and behind the middle with radiating, imbricated striæ; those on the upper part are horizontal; the epidermis pale testaceous. Besides the concentric striæ, there are sometimes a few obsolete concentric wrinkles.

Colour whitish. Epidermis slightly tinted with pale testaceous.

A single specimen of this extremely interesting shell, containing its animal, and measuring three-quarters of an inch in length, was taken in Torbay, and forms a part of the collection of C. W. Loscombe, Esq., of Exmouth, who, with his usual liberality, permitted me to make the above description from it.

Since writing the above, I have examined a second specimen, which my friend the Provost of Eton found on the Barmouth sands. It measures one inch three eighths in length, and nearly five-eighths in height; and although somewhat worn, agrees in its character with Mr. Loscombe's specimen: and subsequently I have received two living specimens from the Exeter bank, off Dawlish, and have seen the shells of several others, none of which exceed three-quarters of an inch in length.

"I have a specimen in my collection which I received from the Devonshire coast."—T. B.

FAMILY V. MYADÆ.

Mya, *Auctorum.*

The shells generally inequivalve, gaping behind; the hinge toothed only in the genera of the third Stirps: the ligament is either internal, and placed in either a horizontal or vertical process; or external, and hinge-shaped.

The tracheal or respiratory tubes are always much elongated, are joined together, and are covered by that epidermis which covers the shell: the mantle, in the first Stirps at least, is joined everywhere, excepting at the exit of the foot.

Stirpium et Generum Synopsis.

Stirps 1. Cardo edentulus; processu horizontali in valvâ sinistrâ ligamentum elasticum aperiens ferente.

Processu ligamentum ferente in valvâ sinistrâ	fixo ..	16. Mya.
	mobili .	17. Magdala.

Stirps 2. Cardo edentulus; processu verticali ligamentum elasticum aperiens in valvâ utrâque ferente.

Ligamentum	externè prominens ginglymoïdes......................		18. Thracia.
	omnino reconditum; valvis	inæqualibus .	19. Galaxura.
		æqualibus ..	20. Ixartia.

Stirps 3. Cardo dentatus; processu verticali in valvâ utrâque ligamentum elasticum aperiens ferente.

Cardo in valvâ utrâque pone ligamentum dente parvo lamelliformi; valvâ sinistrâ dente triangulari ante ligamentum instructâ	21. Lutraria.
Cardo in valvâ utrâque ante ligamentum dente fisso instructus........................	22. Psammophila.
Cardo in valvâ unâ dente uno recurvo, in alterâ dentibus duobus instructis..........	23. Oronthea.

STIRPS I.

Hinge toothless; the horizontal process which bears the elastic opening ligament is in the left valve.

Genus 16. Mya.

The shells rather thick, the left valve rather larger than the right valve; the umbones are central; the process bearing the closing ligament is fixed, horizontal, and excavated above. The foot is small, and abruptly conically compressed; the lips are elongated and acuminated; the branchiæ or gills are free behind.

The Myæ live beneath mud, sand or shingles in most of our estuaries, but are most frequently found in the open pure sea. The respiratory tube varies extremely in different individuals of the same species, and depends on the depth of their habitations, which they are unable to change; their foot being too small for much, if any locomotion.

1. Mya arenaria.

Shells compressed, ovate, acuminated posteriorly, sculptured with irregular concentric striæ; the valves equally convex; the epidermis yellowish or rufous brown, most frequently more or less spotted with blackish. Length five inches; height two and a half or three inches.

Mya arenaria, *Lister, Conch.* t. ccccxix. f. 263; *Linn. Faun. Suec.* 2125; *Syst. Nat.* 1112; *Penn. Brit. Zool.* iv. 79. t. xliii.; *O. Fabr. Faun. Grœn.* 405. no. 407; *Chem. Conch.* vi. 3. Vig., and t. i. f. 3, 5; *Pult. Cat. Dorset.* t. iv. f. 8; *Brug. Encycl. Méthod.* t. ccxxix. f. 1. *a, b.*; *Donov. Brit. Shells,* t. xxxv.; *Mont. Test. Brit.* 30; *M. & R. Trans. Linn. Soc.* viii. 36; *Lam. Hist. Nat. des Anim. sans Vert.* v. 461; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 41; *Turt. Conch. Dict.* 98.

Chama arenaria, *Da Costa, Brit. Conch.* 232.

It is often sent to market as food, and is popularly denominated Old-maid; it is most generally found amongst pebbles in estuaries, and sometimes occurs in muddy sand.

2. MYA TRUNCATA.

Shells inflated, obliquely truncated behind and exflected, the left valve most convex; the epidermis ochraceous. Length three inches; height two and a quarter inches.

Mya truncata, *Lister, Anim. Angl.* t. v. f. 36; *Conch.* t. ccccxxviii. f. 269; *Petiv. Gaz.* t. lxxix. f. 12; *Gualt. Test.* t. xci. f. D.; *Olaf's Isl.* t. xi. f. 7; *Linn. Faun. Suec.* 2126; *Syst. Nat.* xii. 111. no. 26; *Penn. Brit. Zool.* iv. 78. t. xli. f. 14; *O. Fabr. Faun. Grœnl.* 404. no. 406; *Chem. Conch.* vi. t. 1. f. 1, 2; *Brug. Encycl. Méthod.* t. ccxxix. f. 2. *a, b.*; *Pult. Cat. Dorset.* 27. t. iii. f. 1; *Donov. Brit. Shells,* t. xcii.; *Mont. Test. Brit.* 32; *M. & R. Trans. Linn. Soc.* viii. 35; *Lam. Syst. Nat. des Anim. sans Vert.* v. 461; *Wood, Gen. Conch.* i. t. xvii. f. 1, 2; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 42; *Turt. Conch. Dict.*

Concha truncata, *Da Costa, Brit. Conch.* vi. 3. Vig. and t. i. f. 3, 4.

Inhabits the sand of the sea as well as estuaries; it is very common in the Kingsbridge Estuary, at Salcombe, the Frith of Forth, and Tenby. It is said to be eaten in the Hebrides, where it is also very abundant.

Genus 17. MAGDALA.

The shell fragile, thin, inequivalve, the left valve larger and more convex; the umbones central; the epidermis thin; the process which bears the elastic opening ligament is elongate-triangular, moveable, and not at all excavated. The animal is unknown.

MAGDALA STRIATA.

Shells oblong, subpellucid, narrower posteriorly and truncated, pearly inside; the epidermis pale fuscous, arranged into elevated diverging lines. Length one inch and three quarters; height three quarters of an inch.

Mya striata, *Linn. Syst. Nat.* xii. 1111. no. 21; *Gualt. Test.* t. cv. f. F.; *Chem. Conch.* viii. t. cii. f. 864–866; *Gmel. Syst. Nat.* 3215; *Donov. Brit. Shells,* t. cxvii.; *Mont. Test. Brit.* 26; *M. & R. Trans. Linn. Soc.* viii. 32; *Flem. Edinb. Encycl.* vii.; *Turt. Conch. Dict.* 105.

Pholas conoides, *Parsons, Act. Angl.* 55. t. i. f. 1–4.

Pholas Nanus, *Pult. Cat. Dorset.* 27. t. i. f. 7.

This elegant shell was first discovered off Tenby by Mr. Lyons, and has since been found in the Plymouth Sound by C. Prideaux, Esq.; off the western coasts of Cornwall by Mr. J. Cranch, and in Bantry Bay, Ireland, by the late Miss Hutchings.

STIRPS II.

The shells shut anteriorly; the umbones nearly central.

Montagu referred the genera of this Stirps to one of his artificial genera called *Ligula* (a name long before adopted to distinguish a genus of intestinal worms, which is still in use), and associated them with those of the following family, the *Abradæ.*

Genus 18. Thracia.

Shells with the right valve most convex; umbones placed a little behind the middle of the shell: epidermis thin; the process that bears opening ligament gradually formed: ligament slightly projecting, as if simply hinge-shaped.

* *The process bearing the ligament small elongate.*

1. **Thracia convexa.**

Shells ventricose, smooth, slightly ploughed, the interstices striolated, truncated behind, the angles rounded. Length two inches and a half; height nearly two inches.

Ligula distorta (adulta), *Mont. Test. Brit. Supp.* 166.

Mya convexa, *Wood, Gen. Conch.* i. 92. t. xviii. f. 1; *Turt. Conch. Dict.* 101.

This very rare species has been taken occasionally in Salcombe Bay and in the Plymouth Sound.

** *The process bearing the ligament irregular large.*

2. THRACIA DECLIVIS.

Shell somewhat compressed, concentrically striated, sprinkled very closely with innumerable confluent granulations, truncated posteriorly, the lower angle rounded. Length nearly four inches; height nearly two inches and a half.

Mya declivis, *Penn. Brit. Zool.* iv. 79; *M. & R. Trans. Linn. Soc.* viii. 36; *Wood, Gen. Conch.* i. 93. p. 18. f. 2, 3; *Flem. Edinb. Encycl.* vii. 88; *Dill. Desc. Cat.* 43.

Mya pubescens, *Mont. Test. Brit.* 40; *Turt. Conch. Dict.* 99.

Inhabits all the sandy coasts of Britain in great plenty; the adult has been found only in very deep water on the western coasts: in these opposite states it has been described as two distinct species; but I have seen such good series of the shell in every stage, as to satisfy me that the supposed species are but the young and adult of one animal.

In the young state this species is whitish, and at first sight seems to be smooth; but when examined with a strong lens, its surface appears covered with very minute granulations, that are more distinct at the hinder part of the shell, which is always more or less tinted with dirty brown, or ferruginous of various tints. The process for the cartilage at this period wants the anterior border, which gradually increases during the growth of the shell, until it fills up a vacancy between the process and the umbo; and at last forms a thick margin, connecting the process with the inner or lower part of the umbo. The adult shell is subpellucid, more or less tinted with dirty testaceous white. Length four inches; height two inches and four-fifths. The right projects over the left umbo in the young, as well as in the adult shell. The inside is also silvery in the young state.

Genus 19. GALAXURA.

Shell with the left valve largest and most convex; umbones situated behind the middle of the back, the right one largest and slightly covering the left; epidermis extremely thin; process bearing the opening ligament in both valves spoonshaped.

GALAXURA PRÆTENUIS.

Shell smooth, striated concentrically; the inferior striæ, especially anteriorly, elevated; gradually narrower behind; its extremity rounded and finely granulated. Length an inch and four-fifths; height an inch.

Mya prætenuis, *Pult. Cat. Dorset.* 28. t. iv. f. 7; *Mont. Test. Brit.* 41; *M. & R. Trans. Linn. Soc.* viii. 37; *Dill. Desc. Cat.* 43; *Turt. Conch. Dict.* 101.

Ligula prætenuis, *Mont. Test. Brit. Suppl.* 23; *Flem. Edinb. Encycl.* vii. 88.

Inhabits the shores of Devon and Cornwall. Length $1\frac{1}{2}$; height 1 inch.

Genus 20. IXARTIA.

Shells convex and subventricose; umbones situated behind the middle of the back; nearly equally large; the epidermis thin; the process bearing the opening ligament in both valves connected posteriorly with the shell; a triangular excavation for the ligaments.

IXARTIA DISTORTA.

Shells dirty white, concentrically striated with antiquated striæ, narrower behind and rounded, and generally more or less distorted. Length one inch; height six lines.

Mya distorta, *Mont. Test. Brit.* i. 42. t. i. f. 1; *M. & R. Trans. Linn. Soc.* viii. 37; *Dill. Desc. Cat.* 45; *Turt. Conch. Dict.* 101.

Ligula distorta, *Mont. Test. Brit. Suppl.* 23; *Flem. Edinb. Encycl.* vii. 88.

This species is extremely common on the western coast of England, especially at Falmouth, where it is found burrowed in limestone, and is therefore consequently more or less distorted. The most common distortion is in having the inferior margin of the shell undulated.

STIRPS III.

Shell gaping at each extremity: the process which bears the internal opening ligament vertical in both valves: the umbones are situated before the middle of the shell.

The genera composing this Stirps were formerly arranged with the *Mactræ*.

Genus 21. LUTRARIA.

Lutraria, *Lamarck, Cuvier.*

Shells oblong, ovate, compressed; umbones before the middle of the back; epidermis thin and smooth; hinge in each valve, behind the ligament, with a small lamelliform tooth; left valve with a triangular tooth before the opening ligament; respiratory tubes very large; foot large, acuminated on each side towards its apex, abruptly compressed, the apex itself rounded; the aperture for its exit, elongate; branchiæ with their posterior extremities free.

LUTRARIA ELLIPTICA.

Shell smoothish, faintly striated concentrically; epidermis greenish. Length five inches; height two inches and a half.

Mactra lutraria, *Linn. Syst. Nat.* xii. i. 1126; *Penn. Brit. Zool.* iv. 92. t. lii. f. 44; *Mont. Test. Brit.* i. 110; *M. & R. Trans. Linn. Soc.* viii. 73; *Dill. Desc. Cat.* 146; *Turt. Conch. Dict.* 84.

Lutraria elliptica, *Lam. Syst. des Anim. sans Vert.* 120; *Hist. Nat. des Anim. sans Vert.* v. 468.

Lutraria vulgaris, *Flem. Edinb. Encycl.* vii. 92.

This species is common along the coasts of Cornwall: it occurs likewise in the Kingsbridge Estuary, at Dawlish, Paington, Torbay, and on the shore of Caermarthen, near Laugharn.

Young shells are often covered with a lead-coloured epidermis.

Genus 22. PSAMMOPHILA.

Shell elongate, recurved behind the umbones; the valves convex; umbones before the middle of the back; epidermis antiquated, thin; hinge in both valves with a tooth, having its apex notched, placed before the ligament.

PSAMMOPHILA SOLENOÏDES.

Shell somewhat ventricose, with concentric antiquated striæ.

Mactra hians, *Mont. Test. Brit.* 101; *M. & R. Trans. Linn. Soc.* viii. 74; *Dill. Desc. Cat.* 146; *Turt. Conch. Dict.* 85; *Flem. Edinb. Encycl.* vii. 93.

Lutraria Solenoïdes, *Lam. Syst. des Anim. sans Vert.* 120; *Hist. Nat. des Anim. sans Vert.* v. 468.

It is common at the mouth of the Truro river, and on several parts of the Cornish coast. It occurs likewise in the Kingsbridge Estuary. Length five inches; height two and a half inches.

Genus 23. ORONTHEA.

Shells suborbicular; the umbones central and recurved; the valves convex; the hinge in one valve with one recurved tooth, in the other two teeth*; in each valve is an elevated lamella.

ORONTHEA MONTAGUANA.

Shell subglobose, semitransparent, transversely striolated; epidermis shining.

Mya suborbicularis, *Mont. Test. Brit.* 39; *Flem. Edinb. Encycl.* vii. 88; *Dill. Desc. Cat.* 55.

Tellina suborbicularis, *Turt. Conch. Dict.* 179.

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* I have observed in different individuals of this genus, that the single tooth is sometimes in the right, then in the left valve, and the contrary. There are several entire species of this genus in the collection of Lord Tankerville.

FAMILY VI. PANDORADÆ.

Shells inequivalve; the hinge with one or two teeth in each valve, but no lateral lamellæ; the ligament internal.

Synopsis Generum.

Testæ regulares breves inæquivalves subclausæ. Ligamentum internum in foveolis insertum	24. Corbula.
Testæ regulares oblongæ inæquivalves, valvâ sinistrâ planulatâ; dextrâ convexâ. Ligamentum internum	25. Pandora.

Genus 24. Corbula.

Corbula, *Lamarck*, *Cuvier*.

The shells regular, inequivalve, inequilateral, nearly closed: the hinge with one conic, curved, ascending cardinal tooth, with a lateral fovea or excavation in each valve; but no lateral lamellæ; the ligament internal, situated in a foveola or little excavation.

The animal with its tracheal tubes very much elongated equally and joined together.

Corbula nucleus.

Shells globosely-trigonal, concentrically striated, somewhat antiquated; the left umbo more gibbose than the right valve. Length half an inch; height three-eighths and half of an inch.

Mya inæquivalvis, *Walk. Test. Min. Rar.* t. iii. f. 87; *Mont. Test. Brit.* 38; *M. & R. Trans. Linn. Soc.* viii. 40. t. i. f. 6; *Flem. Edinb. Encycl.* vii. 88; *Dill. Desc. Cat.* 145; *Turt. Conch. Dict.* 107.

Corbula nucleus, *Lam. Hist. Nat. des Anim. sans Vert.* v. 496.

This species is very common in the British Seas, everywhere in deep water or sandy bottoms.

Genus 25. PANDORA.

Pandora, *Lamarck*.

Shells regular, inequivalve, inequilateral, transversely oblong; the left valve rather flat; the right valve convex; the hinge with two oblong, divaricating, unequal teeth in the left valve; and two foveolæ or small excavations in the right valve.

The animal is unknown to me.

1. PANDORA ROSTRATA.

Shells pearly, the anterior aspect the longest, attenuated and rostrated; thus angulated in each valve; the epidermis yellowish white. Length one and three-eighths; height five-eighths of an inch.

Tellina inæquivalvis, *Linn. Syst. Nat.* 1118; *Gronov. Zooph.* t. xviii. f. 3; *Brunnich, Besch. Berl. Natur.* f. iii. 313. t. vii. f. 25–28; *Chem. Conch.* vi. t. xi. f. 116, *a, b, c*; *Poli, Test.* i. t. xv. f. 5, 9.

Pandora margaritacea, *Lam. Encycl. Méth.* t. ccl. f. 1. *a, b, c*; *Syst. des Anim. sans Vert.* v. 137.

Pandora rostrata, *Lam. Hist. Nat. des Anim. sans Vert.* v. 498.

This species has been taken on the southern coasts of Ireland, and is extremely rare. It is common in the Mediterranean; and occasionally is found at La Manche on the French coast.

2. PANDORA OBTUSA.

Shell pearly, with divaricating striæ; the hinder aspect towards its extremity dilated and very obtuse, hence obtusely angulated; the epidermis whitish, inclining to yellowish. Length one and two-eighths; height four-eighths of an inch.

Mya striata, *Mont. Trans. Linn. Soc.* xi. t. xiii. f. 1. A; *Dill. Desc. Cat.* 143; *Turt. Conch. Dict.* 105.

Pandora obtusa, *Leach, MSS. Lam. Hist. Nat. des Anim. sans Vert.* v. 499.

This species was first discovered by Mr. Lyons at Tenby; it has since been found by Mr. Loscombe in Torbay, and in the Plymouth Sound by Mr. J. Cranch and C. Prideaux, Esq.

FAMILY VII. AMPHIDESMADÆ.

The shell somewhat elongate or subtriangular, gaping a little before and behind; the umbones nearly central or behind the middle of the shell; the cardinal ligament interior.

* *Umbones pone testæ medium locati.*

Cardo in valvâ dextrâ lamellâ ante et pone umbones	26. Amphidesma.

** *Umbones subcentrales.*

Cardo in valvis ambabus lamellæ ante et pone umbones	27. Eupoleme.
Cardo in valvâ sinistrâ lamellæ ante et pone umbones	28. Orixa.
Cardo lamellis nullis	29. Trigonella.

Genus 26. Amphidesma.

Amphidesma, *Lamarck.*

The shells rather elongate; the umbones situated behind the middle of the shells; the hinge with a lamella before and behind the umbones in the right valve, and without lamellæ in the left valve: the process bearing the cardinal ligament is produced vertically.

The upper margin of the left valve (in all the species) before and behind the lamella bearing the cardinal ligament is very much attenuated, and is received into the grooves formed in the opposite valve between the margin and the lamelliform teeth.

1. AMPHIDESMA GOODALLIANA.

Shells white, pellucid, somewhat prismatic, striolated concentrically, gradually rounded behind. Length three-eighths of an inch ; height one and a half the eighth of an inch.

Mya ferruginosa, *Mont. Supp.* 22; *Dill. Desc. Cat.* 46 ; *Turt. Conch. Dict.* 102?

A. Goodallii is nearly allied to *A. prismatica*, from which it may at once be distinguished by the gradual rounding of its posterior extremity.

It is by no means uncommon on the southern coast of Devon, and is always found in deep water. It has been taken at Barmouth in Wales by the Provost of Eton.

Colour white ; its hinder extremity generally more or less incrusted with a ferruginous deposit, from which it was improperly named *ferruginosa* by Montagu, whose figure has not the least affinity with the shell bearing that name in his collection.

2. AMPHIDESMA PRISMATICA.

Shells pellucid, prismatic, concentrically striolated, gradually attenuated behind. Length seven-eighths of an inch ; height nearly half an inch. Colour whitish ; surface very glossy.

Ligula prismatica, *Mont. Test. Brit. Supp.* 23. t. xxvi. f. 3 ; *Flem. Edinb. Encycl.* vii. 88.

Amphidesma prismatica, *Lam. Hist. Nat. des Anim. sans Vert.* v. 492.

Mya prismatica, *Dill. Desc. Cat.* 47 ; *Turt. Conch. Dict.* 103.

This beautiful species is by no means uncommon on the sandy coasts of the lower parts of the Frith of Forth, especially after storms, when they are often thrown on shore in great plenty. Montagu found it on the coast of South Devon, where it was likewise taken by Mr. Cranch. I found a few dead specimens near Clonikelty in Ireland.

Dr. Goodall has found it several times in the stomach of the Common Plaice, *Platessa Rondeletii.*

3. AMPHIDESMA BOYSIANA.

Shells white, opake, glossy, somewhat compressed and prismatic, very finely striated concentrically, abruptly acuminated and rounded behind. Length seven-eighths of an inch; height five-eighths.

Mactra Boysii, *Mont. Test. Brit.* i. 98; *M. & R. Trans. Linn. Soc.* viii. 72. t. i. f. 12; *Turt. Conch. Dict.* 84; *Dill. Desc. Cat.* 143.

Ligula Boysii, *Mont. Test. Brit. Supp.* 23; *Flem. Edinb. Encycl.* vii. 88.

Amphidesma Boysii, *Lam. Hist. Nat. des Anim. sans Vert.* v. 491.

Inhabits most of the sandy coasts of Great Britain, more especially in deep water. It is a favourite food of the Cod, *Gadus Morrhua*, and is frequently obtained in fine condition by examining the stomach of that fish. It is sometimes thrown on shore during storms.

Genus 27. EUPOLEME.

Shells very much compressed, longer than high, rounded before and behind; umbones subcentral. Hinge in each valve with a lamella before and behind the umbones. The process which bears the ligament small; that of the left valve having a tooth, which is situated before the ligament.

EUPOLEME CANCELLATA.

Shell white, thin, pellucid, suborbicular, exquisitely sculptured, resembling network of the finest lace. Length half an inch; height three-eighths.

Solen squamosus, *Mont. Test. Brit. Supp. Add.* 565; *M. & R. Trans. Linn. Soc.* viii. 48; *Flem. Edinb. Encycl.* vii. 87; *Dill. Desc. Cat.* 70; *Turt. Conch. Dict.* 164.

Inhabits the deep water, on a sandy bottom, off the coasts of Devonshire, but is excessively rare.

It was discovered by Montagu, who found a single valve amongst sand dredged up in Salcombe Bay, where it was again taken by Mr. Cranch, who observed it likewise in the Plymouth Sound. The only living specimen that I have seen was taken up by the trawl in Torbay, and is in Mr. Loscombe's cabinet. From the examination of this last specimen in a recent state, I was enabled to discover its proper situation in the natural system.

Genus 28. ORIXA.

Shells when viewed laterally are subtriangular, longer than broad, the inferior margin rounded; umbones nearly central. Hinge in the left valve with a lamella before and behind the umbones; the processes bearing the ligament vertical and excavated; the left valve with a tooth before the ligament, which is received between two teeth, similarly situated in the right valve.

ORIXA TENUIS.

Shell white, thin, slightly opake, finely striated concentrically. Length five-sixteenths; height four-sixteenths of an inch.

Mactra tenuis, *Mont. Test. Brit.* 572. t. xvii. f. 7. figura pessima; *M. & R. Trans. Linn. Soc.* viii. 72; *Dill. Desc. Cat.* 142; *Turt. Conch. Dict.* 84.

Ligula tenuis, *Mont. Test. Brit. Supp.* 23; *Flem. Edinb. Encycl.* vii. 88.

Amphidesma tenuis, *Lam. Hist. Nat. des Anim. sans Vert.* v. 492.

Inhabits the shores of estuaries, but is of rather rare occurrence. It has been taken at Southampton and near Weymouth by Montagu and Mr. Boyer, and at Portsea by Mr. Holloway.

Genus 29. TRIGONELLA.

Trigonella, *Da Costa.*

Shell longer than high; when viewed on the side, somewhat triangulate, the lower margin rounded; umbones nearly central. Hinge without lamellæ; the processes bearing the cartilage produced vertically and excavated; the left valve with an obliquely vertical tooth entering between two unequal teeth in the right valve.

The respiratory tubes separate; the lower one very long, the upper much shorter.

TRIGONELLA LISTERIANA.

Shell very compressed, with elevated concentric striæ, which are often antiquated. Length two inches two eighths; height one inch five-eighths. Colour yellowish or croceous, sometimes whitish, but generally tinged with black, from the mud in which it resides.

Lister, Anim. Angl. t. iv. f. 23.
Mactra Listeri, *Gmel. Syst.* i. 3261; *M. & R. Trans. Linn. Soc.* viii. 71; *Turt. Conch. Dict.* 83.
Venus Borealis, *Penn. Brit. Zool.* iv. 96.
Trigonella plana, *Da Costa, Brit. Shells,* 200. t. xiii. f. 1.
Tellina plana, *Donov. Brit. Shells,* t. lxiv. f. 1.
Mactra compressa, *Mont. Test. Brit.* 96.
Ligula compressa, *Mont. Test. Brit. Supp.* 23; *Flem. Edinb. Encycl.* vii. 88.
Lutraria depressa, *Lam. Hist. Nat. des Anim. sans Vert.* v. 469.
Mactra piperata, *Dill. Desc. Cat.* 142.

Inhabits mud at the mouths of rivers, estuaries, or arms of the sea, and is very common.

The umbones are slightly tinged with black bronze in some specimens, but such are of rare occurrence in Britain.

FAMILY VIII. NUCULADÆ.

Shell equivalve, closed, somewhat triangular or elongate. Umbones before the middle of the shell. Hinge under the umbones with a vertical process bearing the ligament, with many teeth before and behind the umbones. Ligament internal.

The respiratory tubes not united together.

Generum Synopsis.

Testæ elongatæ, posticè attenuatæ. Cardo dentibus acutangulis instructus	30. Lembulus.
Testæ oblique triangulares, margine inferiore rotundato. Cardo dentibus subtriangulatis obtusiusculis instructus......	31. Nucula.

Genus 30. Lembulus.

Shells elongate, rounded anteriorly, attenuated and beaked posteriorly. Hinge obtusely angulated, furnished with many teeth before and behind the ligament; the teeth composed of acutely angular lamellæ.

Lembulus sulcatus.

Shells concentrically sulcated; the grooves numerous; the interstices narrow and rounded; the dorsal margin behind the umbones smooth. Length rather more than three-quarters of an inch; height three-eighths.

Colour brown or luteous-brown, sometimes tinted with greenish. Inside white, with a slight pearly lustre.

Arca minuta, *Mont. Test. Brit.* 140; *M. & R. Trans. Linn. Soc.* viii. 92; *Dill. Desc. Cat.* 245; *Turt. Conch. Dict.* 11.
Nucula minuta, *Flem. Edinb. Encycl.* vii. 97.

It is occasionally found at Sandwich in Kent; at Tenby; in the Frith of Forth; in Shetland, and in Bantry Bay, Ireland; but is by no means common.

Genus 31. Nucula.

Nucula, *Lamarck.*
Glycymeris, *Da Costa.*

Shells rather elongate, obliquely triangular, the under margin rounded. Hinge nearly rectangular, with many teeth before and behind the ligament; teeth lamelliform, somewhat triangular, elongate, with their extremities rather obtuse.

NUCULA MARGARITACEA.

Shell concentrically finely striated, the epidermis elevated into obsolete radiating lines; inferior margin crenate.

Colour olivaceous, often inclining to testaceous, sometimes rayed faintly with pale brown. It is rarely found of a white colour. Length five-eighths; height half an inch.

Arca Nucleus, *Pet. Gaz.* t. xvii. f. 9; *Linn. Syst. Nat.* xii. 1143; *Penn. Brit. Zool.* iv. 98; *Gmel. Syst. Nat.* 3314; *Donov. Brit. Shells*, t. lxiii.; *Mont. Test. Brit.* 141; *M. & R. Trans. Linn. Soc.* viii. 95; *Flem. Edinb. Encycl.* vii. 91; *Dill. Desc. Cat.* 244; *Turt. Conch. Dict.* 8.
Arca margaritacea, *Brug. Encycl. Méth. Vers.* 109.
Nucula margaritacea, *Lam. Syst. des Anim. sans Vert.* 115; *Hist. Nat. des Anim. sans Vert.* vi. pt. i. 59.
Glycymeris argentea, *Da Costa,* 170. t. 15. f. 6.

Inhabits all our sandy shores, as well as the deep water. The concentric striæ, and the elevated epidermis, often produce a reticulated appearance, especially at the anterior extremity of the shell: this is most evident in such shells as have antiquated ridges.

FAMILY IX. MACTRADÆ.

Testæ plùs aut minùs trigonæ. Ligamentum internum. Cardo angulatus paucidentatus.

Synopsis Generum.

Testæ cardo dente uno angulato in utrâque valvâ, in unâ integro, in alterâ fracto; et lamellâ ante et pone dentes cardinales, in unâ simplici, in alterâ duplicatâ	32. MACTRA.
Testæ cardo edentulus, lamellis duabus æqualibus, angulum delineantibus, ante et pone ligamentum, instructus	33. DORVILLEA.

Genus 32. Mactra.

The shell trigonal, rounded behind and beneath; the hinge with one angulated tooth in each valve; in one valve it is entire, in the other broken; and with a lamella before and behind the cardinal tooth, in one valve simple, in the other duplicated.

The tracheal tubes elongated, equal, and equally broad.

1. Mactra Stultorum.

Shells smooth, striolated concentrically; the epidermis grey or rufous brown, rayed with pale whitish rays of the same colours.

Colour pale reddish-brown, grey or white, sometimes tinted with purple; inside white, occasionally spotted or coloured with pale purple. Length two inches; height one and a half.

Mactra Stultorum, *Linn. Syst. Nat.* i. 1126; *Penn. Brit. Zool.* iv. 92; *Mont. Test. Brit.* i. 94; *M. & R. Trans. Linn. Soc.* viii. 69; *Flem. Ent. Encycl.* vii. 93; *Dill. Desc. Cat.* 138; *Lam. Hist. Nat. des Anim. sans Vert.*; *Turt. Conch. Dict.* 81.

Tellina depressa, *Penn. Brit. Zool.* iv. 87. t. 49. f. 30, junior.

Mactra cinerea, *Mont. Test. Brit. Supp.* 35.

Mactra Stultorum, var., *Turt. Conch. Dict.* 81.

Inhabits most of the sandy shores of Britain, and is very common. The second variety differs from the first, merely in wanting the colour of its rays; its form is absolutely the same. The third variety was discovered by the present Provost of Eton, at Barmouth in Wales, in company with the first variety and nearly in equal abundance. Since then I have found this variety full-grown at Hastings, in great abundance.

2. Mactra subtruncata.

Shells abruptly produced behind and concentrically ridged; the ridges numerous, nearly equal in size, and set close to one another; abruptly produced behind.

Colour testaceous or dirty white; inside white. Length nine-eighths; height seven-eighths of an inch.

Mactra Stultorum, *Penn. Brit. Zool.* iv. 92. t. lii. f. 42.

Mactra subtruncata, *Mont. Test. Brit.* 93. *Supp.* 37. t. xvii. f. 1; *M. & R. Trans. Linn. Soc.* viii. 71; *Flem. Edinb. Encycl.* vii. 93; *Dill. Desc. Cat.* 141; *Turt. Conch. Dict.* 82.

This species is very common on the coasts of Devon, Cornwall, South Wales, south of Ireland, and in the Isle of Arran opposite Lamlash Island.

3. MACTRA TRUNCATA.

Shells wedge-shaped, concentrically striated; striæ irregular. Length an inch and five-eighths; height one inch and a half.

Colour more or less tinged with reddish, inclining to rust. It occurs in great abundance in the Kingsbridge Estuary, and is sometimes found in the Frith of Forth.

Mactra truncata, *Mont. Test. Brit. Supp.* 34; *Flem. Edinb. Encycl.* vii. 93; *Dill. Desc. Cat.* 140; *Turt. Conch. Dict.* 81?

Mactra crassatella, *Lam. Hist. Nat. des Anim. sans Vert.* v. 479.

It may readily be distinguished from *Mactra solida* by its superior height in proportion to its length. I have carefully measured a vast number of specimens of each species, and they have given the mean result.

4. MACTRA SOLIDA.

Shells ovate-triangular, striated concentrically; the striæ irregular.

Colour testaceous, yellowish or dirty white; inside white and glossy. Length one inch, seven-eighths; height eleven-eighths.

Mactra solida, *Linn. Syst. Nat.* xii. 1126; *Penn. Brit. Zool.* iv. 92. t. lii. f. 43. t. 5; *Mont. Test. Brit.* 92; *Flem. Edinb. Encycl.* vii. 93; *Dill. Desc. Cat.* 140; *Lam. Hist. Nat. des Anim. sans Vert.* v. 477; *Turt. Conch. Dict.* 81.

This species, which is by far the most common, is found on most of our coasts, preferring such as are sandy or composed of shingles.

They are eaten by the inhabitants of the southern coast of Devon, and are sometimes named *Hens*.

Genus 33. DORVILLEA.

Shells triangularly orbicular; the hinge under the umbones, and before and behind the cardinal ligament, with two equal lamellæ forming an angle.

The animal with its tracheal tubes very unequal, not ciliated; the upper one very short; the under one very long.

DORVILLEA ANGLICA.

Shells very thin; the epidermis very smooth, pale testaceous. Length three-eighths; height two-eighths and one half of the eighth of an inch.

I discovered this new species in some salt pools near the sea-shore near Bexhill in Sussex, in great abundance on a marine Ulva; but could not find it in the neighbouring sea.

FAMILY X. VENERIDÆ.

The shells shut; the valves equal; the cardinal ligament exterior and hinge-shaped; the hinge is angulated and furnished with teeth.

Stirpium Synopsis Artificialis.

A. Lamella ante et pone dentes cardinales locata.

a. Dentes cardinales divergentes.

Stirps 1. Testæ valvis æqualiter convexis.
Stirps 10. Testæ valvis compressis.

b. Dentes cardinales non divergentes.

Stirps 11.

B. Lamella sæpius nulla ante et pone dentes cardinales.

a. Umbones ante aut pone medium locati.

Stirps 3.

b. Umbones pone testæ medium locati.

Stirps 4.

c. Umbones subcentrales.

Stirps 2. Umbones non prominentes.

Stirps 7. Umbones prominentes et antrorsum curvati. Testæ subrotundatæ impressione cordiformi imperfectâ.

Stirps 9. Umbones prominentes recurvi. Testæ rotundatæ impressione cordiformi nullâ.

Stirps 5. Umbones subcentrales prominentes recurvi. Testæ subcordiformes impressione cordiformi perfectâ.

Stirps 6. Umbones subcentrales valde prominentes et recurvi. Testæ subrotundatæ, aut subglobosæ.

Stirps 8. Umbones prominentes antrorsum curvati. Testæ subcordatæ impressione cordiformi perfectâ.

STIRPS I.

The shells equally convex; the cardinal teeth diverging, and generally with a lamella placed before and behind them.

Synopsis Generum.

* *Lamella pone dentes cardinales locata.*

Testæ ovato-globosæ; umbones subcentrales prominentes obtusi. Dentes cardinales duo simplices in utrâque valvâ, lamella compressa pone dentes cardinales locata. . 34. AUTONÖE.

** *Lamella ante et pone dentes cardinales locata.*

Testæ ovato-globosæ; umbones centrales tu-

midi. Dentes cardinales duo, minimi in utrâque valvâ ; dente posteriore in sinistrâ complicato ; duobus in dextrâ simplicibus ; lamellæ laterales elongatæ compressæ lamelliformes .... 35. Cyclas.

Testæ sphæricæ ; umbones centrales aut paululum ante testæ medium locati. Dentes cardinales duo, simplices in utrâque valvâ, lamellæ laterales breves compressæ lamelliformes .... 36. Euglesa.

Testæ irregulariter subtriangulares posticè obtusæ ; umbones pone testæ medium locati. Dentes cardinales duo, æquales minimi in utrâque valvâ ; posteriore in valvâ sinistrâ lobato. Lamellæ laterales elongatæ compressæ lamelliformes .... 37. Pera.

Testæ cordiformes; umbones pone testæ medium locati. Dentes cardinales simplices minimi in utrâque valvâ. Lamellæ laterales lamelliformes subcompressæ .... 38. Cordula.

Genus 34. Autonöe.

The shells ovately globose ; the umbones central, prominent and obtuse, in each valve two simple cardinal teeth, with a compressed lamina before and behind them.

The tracheal tubes are only joined at their base, equally long, the upper one narrowest, the foot broad and compressed.

Autonöe rubra.

Shell purple red, smooth, transparent, internally deep shining purple. Length one-eighth of an inch.

Cardium rubrum, *Mont. Test. Brit.* 9 ; *M. & R. Trans. Linn. Soc.* 66 ; *Dill. Desc. Cat.* 131.

Tellina rubra, *Flem. Edinb. Encycl.* vii. 93 ; *Turt. Conch. Dict.* 168.

Lasea rubra occurs on all the western and south-western coasts of Devon abundantly, dwelling in the cracks or interstices of rocks, or amongst the roots of *Fucus digitatus* and other marine plants.

My worthy friend, Dr. Goodall, the Provost of Eton, has observed it to be not uncommon at Tenby and Weymouth.

Genus 35. CYCLAS.

Shells ovately globose; the umbones central and tumid; the hinge with two minute teeth in each valve; the hinder tooth in the left valve complicated, those in the right simple; the lateral lamellæ are transversely elongated, compressed and lamelliform.

The tracheal tubes are unequal, joined only at their base; the under one longest with its aperture fringed; the foot acuminate or lance-shaped, very capable of extension, and at its apex as if furnished with a sucker. The mantle is joined to the base of the foot even to the tubes.

1. CYCLAS RIVICOLA.

Shell compressed, concentrically striated with irregular striæ; the umbones scarcely prominent. Epidermis pale horn-coloured. Length three-eighths of an inch; height two-eighths of an inch.

Cardium corneum, var., *Mont. Test. Brit.* 86; *Lister, Conch.* t. clix. f. 14.

Cyclas rivicola, *Leach, Lam. Hist. Nat. des Anim. sans Vert.* v. 558.

This species inhabits muddy rivers; it is common in the Thames, the Avon and the Exe.

2. CYCLAS LACUSTRIS.

Shells somewhat round, compressed, fragile, with very fine concentric striæ, the umbones slightly prominent. Epidermis pale fuscous or brown. Length five-tenths; height three-tenths of an inch.

Tellina lacustris, *Müll. Verm.* 204. no. 388; *Schröt. Flussconch.* 191. no. 12; *Chem. Conch.* vi. t. xiii. f. 135; *Gmel. Syst. Nat.* 3242; *M. & R. Trans. Linn. Soc.* viii. 60; *Wood, Gen. Conch.* t. lxvii. f. 5; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 104; *Turt. Conch. Dict.* 180; *Drap. Hist. Nat. des Moll. terrest. et fluv.* 130. t. x. f. 6, 7.

Cyclas lacustris, *Lam. Hist. Nat. des Anim. sans Vert.* v. 559; *Flem. Edinb. Encycl.*

Cardium lacustre, *Mont. Test. Brit.* 89.

This species is found occasionally in lakes, but more frequently in marshes: I have found it occasionally in the rapid rivulets near the Forest of Dartmoor.

3. CYCLAS CORNEA.

Shells gibbose, concentrically striolated, with one or two grooves; the umbones prominent.

Tellina cornea, *Lister, Anim. Angl.* t. ii. f. 31; *App.* t. 1. f. 5; *Conch.* t. clix. f. 14; *Linn. Faun. Suec.* 2138; *Syst. Nat.* 1120. no. 72; *Penn. Brit. Zool.* iv. 89. t. xlix. f. 36; *Maton, Trans. Linn. Soc.* iii. t. xiii. f. 39, 40; *Pult. Cat. Dorset.* 31. t. vii. f. 2; *Donov. Brit. Shells,* t. xcv.; *M. & R. Trans. Linn. Soc.* viii. 59; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 104; *Turt. Conch. Dict.* 179.

Cyclas rivalis, *Drap. Hist. Nat. des Moll. fluv. et terrest.* 129. t. x. f. 4, 5.

Cyclas cornea, *Lam. Hist. Nat. des Anim. sans Vert.* v. 558; *Flem. Edinb. Encycl.* vii.

Cardium Nux, *Da Costa, Brit. Conch.* t. xiii. f. 2.

Cardium corneum, *Mont. Test. Brit.* 86.

Var. α. Testis absque sulco transversali, *List. Anim. Angl. App.* 22.

Cardium amnicum, *Pult. Cat. Dorset.* 31.

Var. β. Shells without the groove or grooves. Length half an inch; height five-eighths of an inch.

Colour of the epidermis horn or olive-brown.

This species is common in marshes and ditches; is found extremely large in the Thames.

4. CYCLAS STAGNICOLA.

Shells subrhomboidal, semipellucid, reddish, concentrically striolated; the umbones slightly prominent and black. Length four-eighths of an inch; height three-eighths of an inch.

Cyclas calyculata, *Lam. Hist. Nat. des Anim.* v. 559, β.

This species is common in marshes and ponds in most parts of Britain.

5. CYCLAS ALATA.

The shells very smooth, sculptured with concentric fine striæ, winged above at each side; the umbones very prominent.

Inhabits Campsey-ash in Suffolk, in ditches.

The size exactly that of *Cyclas lacustris.*

Genus 36. EUGLESA.

Shells spherical; the umbones central or situated a very little behind the middle of the shells; the hinge with two simple teeth in each valve; the lateral lamellæ short, compressed and lamelliform.

The tracheal tubes are exserted; the under one is largest, with its aperture open.

1. EUGLESA HENSLOWIANA.

The shells trigonal, gibbous, thin, polished, sculptured with irregular striæ.

Inhabits the river Cam, and in marshes near Cambridge.

Genus 37. PERA.

Shell more or less oblong, behind obtuse, umbo behind the middle of the shell, large teeth, two equal, very small in each valve, hinder of left valve lobed, lateral lamella elongo-compressed, lamella shaped in one valve simple, in the other double.

Animal syphons simple, equal, upper exsertable.

1. PERA HENSLOWIANA.

The shells obtrigonal, very smooth, polished, sculptured with concentric striæ; the interstices sculptured with fine striæ.

The size is the same as that of *Cyclas lacustris.*

Inhabits ——.

2. Pera Amnica.

The shells obtrigonal, smooth, sculptured with irregular, concentric striæ; the interstices sculptured with striæ. Rather larger than the former.

Inhabits ——.

3. Pera Fluviatilis.

The shells obtrigonal, somewhat compressed, smooth, slender, sculptured with irregular, broad grooves; the interstices slightly compressed. Very much smaller than the preceding species.

Inhabits ——.

4. Pera Appendiculata.

The shells obtrigonal, very thin, glossy, smooth, polished, sculptured with striæ almost regular; their umbones furnished with a rounded process. Length four inches and a half; height two and a half lines.

Inhabits the river Cam, near Cambridge.

5. Pera Pulchella.

The shells obtrigonal, very smooth, glossy, polished, sculptured with regular striæ. Length four and a quarter, height two and a half lines.

Inhabits the river Cam, and in rivulets near Cambridge.

6. Pera Gibba.

The shell obtusely obtrigonal, gibbous, thin, glossy, polished, sculptured with irregular striolæ. Length ——.

Inhabits ——.

Genus 38. Cordula.

Shells cordiform; the umbones situated behind the middle of the shell; the hinge with two minute, simple teeth in each valve; the lateral lamellæ lamelliform, subcompressed.

The animal is unknown to me.

1. Cordula amnica.

Shells concentrically sulcated; the sulci striolated. Length a quarter; height three-eighths of an inch.

Tellina amnica, *Gualt. Test.* t. viii. f. *c, c.*; *Chem. Conch.* vi. t. xiii. f. 134; *Müll. Verm.* 205. no. 389; *Gmel. Syst. Nat.* 3242; *Maton, Trans. Linn. Soc.* iii. t. xiii. f. 37, 38, *T.*; *Dill. Desc. Cat.* 105; *Turt. Conch. Dict.*

Tellina rivalis, *Donov. Brit. Shells*, t. lxiv. f. 2; *Pult. Cat. Dorset.* t. vii. f. 2, *a.*

Cardium amnicum, *Mont. Test. Brit.* 86.

Cyclas obliqua, *Lam. Hist. Nat. des Anim. sans Vert.* v. 559.

Cyclas amnica, *Flem. Edinb. Encycl.* vii.

This species is found very commonly in sandy or rocky rivers; generally buried in the sand.

The hinge, the muscular impressions and the contour of the shell, assure me that the animal, though unknown to me, must be distinct from the other genera of this Stirps.

STIRPS II.

The shells generally closed, equally convex; the umbones nearly central, not prominent; most generally no lamella before and behind the cardinal teeth.

Genus 39. Psammobia, *Lamarck.*

Shells transverse, elliptic or ovately-oblong, flattish; the umbones slightly prominent; the hinge with two teeth in the left, and one in the right valve.

The animal is not known to me.

This genus is situated between the genera *Sanguinolaria*, *Psammotæa* and *Tellina*; all the species are beautifully tinted with vivid colours; there are several species in the European, African and Asiatic seas.

1. PSAMMOBIA INCARNATA.

Shells white, oblong-ovate, very finely striated transversely, ornamented with rosy bands; the area of the anterior angle with decussating striæ. Length two inches; height three-quarters of an inch.

Tellina incarnata, *Lister, Anim. Angl. App.* t. i. f. 8; *Conch.* t. cccxciv. f. 241; *Penn. Brit. Zool.* iv. 88. t. xlix. f. 32.

Tellina Ferröensis, *Pet. Gaz.* t. xciv. f. 9; *Pult. Cat. Dorset.* 29. t. vi. f. 1; *Mont. Test. Brit.* 55; *M. & R. Trans. Linn. Soc.* viii. 49; *Flem. Edinb. Encycl.* vii. 29; *Dill. Desc. Cat.* 77; *Turt. Conch. Dict.* 171.

Tellina angulata, *Born. Mus.* t. ii. f. 5.

Tellina radiata, *Da Costa, Brit. Conch.* 209. t. xiv. f. 1.

Tellina Bornei, *Gmel. Syst. Nat.* 3231.

Tellina trifasciata, *Donov. Brit. Shells,* t. lx.

This species is found on the northern and western coasts of England; is very common in the Orkneys, Shetland and Feröe Islands, and has been found on the coasts of Iceland.

It was first discovered by Lister, at Scarborough in Yorkshire.

Genus 40. TELLINA.

Tellina, *Auctorum.*

The shells thin, transverse or orbicular, most generally flattened, with its hinder aspect angulated, with its margin either inflexed or marked with an irregular flexuous fold; the hinge with two teeth in the left valve, the anterior one very minute, the hinder one irregularly bidentate, the posterior lacinia much shorter, with an elongate-triangular lamella; in the right valve one equally bidentate tooth with a very small tooth behind it.

The animal with its tracheal tubes unequal, cylindrical, disjoined, excepting at their base; the under one longer and broader; the foot lamelliform, elongate and acuminated.

1. TELLINA TENUIS.

Shells ovately trigonal, very thin and rather flat, with very fine concentric striæ, reddish, above with narrow white striæ;

the hinge greenish. Length three-quarters; height half an inch.

The animal entirely hyaline and transparent.

Tellina tenuis, *Lister, Conch.* t. ccciv. f. 255; *Petiv. Gaz.* t. xliv. f. 5; *Da Costa, Brit. Conch.* 210; *Donov. Brit. Shells,* t. xix.; *Mont. Test. Brit.* 59; *M. & R. Trans. Linn. Soc.* viii. 52; *Flem. Edinb. Encycl.* vii. 90; *Turt. Conch. Dict.* 169; *Lam. Hist. Nat. des Anim. sans Vert.* v. 526.

Tellina planata, *Penn. Brit. Zool.* iv. 87. t. xlviii. f. 29; *Dill. Desc. Cat.* 81.

Tellina polita, *Pult. Cat. Dorset.* 29. t. v. f. 3.

This elegant species is found abundantly in the European, Mediterranean and Adriatic seas.

2. TELLINA FABULA.

Shells ovate, compressed anteriorly, slightly rostrated; one valve smooth; the other obliquely striated with reflexed striæ. Length three-quarters; height half an inch.

Tellina Fabula, *Gmel. Syst. Nat.* 3239; *Donov. Brit. Shells,* t. xcvii.; *Mont. Test. Brit.* 61; *M. & R. Trans. Linn. Soc.* viii. 52; *Flem. Edinb. Encycl.* vii. 90; *Dill. Desc. Cat.* 91; *Lam. Hist. Nat. des Anim. sans Vert.* v. 526; *Turt. Conch. Dict.* 170.

Tellina Discors, *Pult. Cat. Dorset.* 54. t. xii. f. 3, 3 *a.*

This species is common on almost all the sandy shores of the European ocean.

3. TELLINA DONACINA.

Shells compressed, very slightly flattened, obliquely striolated, anteriorly extremely obtuse, painted with interrupted rays. Length three-quarters; height half an inch.

Tellina donacina, *Linn. Syst. Nat.* 1118. no. 59; *Gmel. Syst. Nat.* 3234; *Pult. Cat. Dorset.* 29. t. xii. f. 3 *b.*; *Mont. Test. Brit.* 58; *M. & R. Trans. Linn. Soc.* viii. 50; *Flem. Edinb. Encycl.* vii. 90.

Tellina donacina, *Lam. Hist. Nat. des Anim. sans Vert.* v. 527; *Dill. Desc. Cat.* 89; *Turt. Conch. Dict.* 170.

Tellina variegata, *Poli, Test.* ii. 45; i. t. xv. f. 10.

β. Testæ valvis ambabus obliquè striolatis.

This species rather rarely occurs in the European and Mediterranean seas.

4. TELLINA DEPRESSA.

Shells ovate, inequilateral, compressedly-flattened, concentrically striolated, pale flesh-coloured, with their umbones purplish. Length one and three-quarters; height one inch.

Tellina depressa, *Gmel. Syst. Nat.* 3238; *Donov. Brit. Shells*, t. clxiii.; *Flem. Edinb. Encycl.* vii. 91; *Lam. Hist. Nat. des Anim. sans Vert.* v. 526; *Dill. Desc. Cat.* 91; *Turt. Conch. Dict.* 171.

Tellina squalida, *Pult. Cat. Dorset.* 29. t. v. f. 2; *Mont. Test. Brit.* 163.

Tellina incarnata, *Poli, Test.* ii. 36; i. t. xv. f. 1.

This species is not very unfrequently found in European and the Mediterranean seas.

Genus 41. LIMICOLA.

Shells thick, suborbicular and rather flat, their posterior aspect slightly truncated; the hinge in each valve with two minute simple teeth.

The animal is unknown to me.

1. LIMICOLA CARNARIA.

Shells reddish white, concentrically striated, and transversely wrinkled; internally smooth red, yellow or white. Length seven-eighths; height three-quarters of an inch.

Tellina carnaria, *Penn. Brit. Zool.* iv. 88. t. xlvii. f. 31; *Dill. Desc. Cat.* 100.

Tellina solidula, *Lister, Anim. Ang.* t. iv. f. 25; *Conch.* t. ccccv. f. 250; *Petiv. Gaz.* t. xciv. f. 6; *Pult. Cat. Dorset.* 29. t. viii. f. 4; *Mont. Test. Brit.* 63; *M. & R. Trans. Linn. Soc.* viii. 58; *Flem. Edinb. Encycl.* 90; *Lam. Hist. Nat. des Anim. sans Vert.* v. 533; *Turt. Conch. Dict.* 177.

Tellina rubra, *Da Costa, Brit. Conch.* 211. t. xii. f. 4.

Var. *α*. Testis fasciis concentricis flavis albicantibus aut rubris ornatis.

Var. *β*. Shells ornamented with yellow, whitish or blue concentric bands.

This species is found on most of the muddy shores of England and France.

STIRPS III.

Shells with their valves equally convex, inequilateral, the hinder aspect very short and very obtuse; the umbones placed before or behind the middle; the left valve with two diverging teeth, the right one with one tooth; a lamella placed behind and sometimes before the cardinal teeth.

Genus 42. DONAX.

Shells transverse, equivalve, inequilateral. its hinder aspect very short and very obtuse; the umbones situated behind their middle; two diverging cardinal teeth in the left valve, in the right one notched tooth; with a lamella in each valve behind the cardinal teeth.

The animal with equal free tubes ciliated at their extremities, the upper one shortest; the foot elongated and acuminated.

1. DONAX VARIEGATA.

Shells slender, very smooth, yellowish or purplish, with a broad band extending from the umbones to the inferior aspect. Length one inch and a quarter; breadth five-eighths of an inch.

Tellina variegata, *Lister, Conch.* t. ccclxxxiv. f. 227; *Bonanni Recr.* t. ii. f. 42; *Mus. Kirch.* f. 41.

Donax complanata, *Mont. Test. Brit.* 106. t. v. f. 4; *M. & R. Trans. Linn. Soc.* viii. 75; *Flem. Edinb. Encycl.* vii. 75; *Dill. Desc. Cat.* 150; *Turt. Conch. Dict.* 42.

Donax polita, *Poli, Test.* ii. t. xxi. f. 14.

Inhabits the European, Mediterranean and Adriatic seas. It is common on most of our coasts; Torbay; Falmouth; Plymouth Sound; Milton Sands; South Wales; Cork, Dublin and Bantry Bays.

2. Donax Trunculus.

Shells transversely elongated, their hinder aspect very short, their margin denticulated; their epidermis chestnut or olive-green; their inside violet-coloured. Length an inch and a half; height half an inch.

Donax Trunculus, *Lister, Anim. Angl.* t. v. f. 35; *Conch.* t. ccclxvi. f. 217; *Linn. Faun. Suec.* 2142; *Syst. Nat.* xii. 1126; *Penn. Brit. Zool.* iv. 93. t. lv. f. 45; *Chem. Conch.* vi. t. xxvi. f. 253, 254; *Pult. Cat. Dorset.* 32. t. vi. f. 3; *Wood, Trans. Linn. Soc.* vi. t. xvi. f. 13–16; *Donov. Brit. Shells,* t. xxix. f. 1; *Mont. Test. Brit.* 103; *M. & R. Trans. Linn. Soc.* viii. 75; *Flem. Edinb. Encycl.* vii. 74; *Lam. Hist. Nat. des Anim. sans Vert.* v. 551; *Dill. Desc. Cat.* 150; *Turt. Conch. Dict.* 41.

This species is common in the European, Mediterranean and Adriatic seas (I have seen specimens from Senegal); it is found common on the following coasts; Dawlish, Torbay; Causand, Whitesand and Falmouth Bays, Cornwall; Cork, Bantry, Yaul and Dingle Bays, Ireland; Friths of Forth and Clyde; on Milton Sands and Sandersfoot.

STIRPS IV.

Shells transverse, equivalve, with the valves shut; umbones situated behind the middle of the shell; no lamella before and behind the cardinal teeth.

Genus 43. Capsa.

The shells transverse, inequilateral, the valves approximating and shut; the hinge with two teeth in the right valve, one bifid in the left valve; the lateral lamellæ none.

The animal with its tracheal tubes connected, at least at their base, and fringed at their extremities; the foot elongate, compressed, subconical.

1. CAPSA IRUS.

Shells ovate, girded with erect membranaceous ridges, anteriorly very obtuse and rough-ridged; the ridges reflexed backward (or arched); epidermis brownish white. The shells white inside. Length one inch; height three-eighths of an inch.

Donax Irus, *Linn. Syst. Nat.* xii. 1128, no. 111; *Borlase, Corn.* t. xxxviii. f. 23; *Pult. Cat. Dorset.* 32. t. xii. f. 6; *Donov. Brit. Shells,* t. xxix. f. 2; *Mont. Test. Brit.* 108, 573; *M. & R. Trans. Linn. Soc.* viii. 77; *Poli, Test. Sic.* ii. t. x. f. 1, 4; t. xix. f. 25, 26; *Flem. Edinb. Encycl.* vii. 94; *Dill. Desc. Cat.* 156; *Turt. Conch. Dict.* 43.

Tellina Cornubiensis, *Penn. Brit. Zool.* iv. 89.

Cuneus foliatus, *Da Costa, Brit. Conch.* t. xv. f. 6.

Inhabits the western coasts of Devon and Cornwall, perforating marble rocks.

2. CAPSA VIRGINEA.

Shells subovate, sculptured with unequal concentric striæ. Epidermis yellowish-white or pale brown, most generally variegated and marbled with rose or purple. Length two inches; height one inch and two-eighths.

Venus virginea, *Lister, Conch.* t. cccciii. f. 247; *Linn. Syst. Nat.* xii. 1136. no. 150; *Schroeter Einl.* iii. 151; *Gmel. Syst. Nat.* 3294; *Chem. Conch.* vii. t. xlii. f. 443; t. xliii. f. 457. *a, b, c.*; *Brug. Encycl. Méthod.* t. cclxxxiii. f. 2; *Pult. Cat. Dorset.* 34. t. xiii. f. 1; *Mont. Test. Brit.* 129; *M. & R. Trans. Linn. Soc.* viii. 89; *Flem. Edinb. Encycl.* vii.; *Dill. Desc. Cat.* 207; *Turt. Conch. Dict.* 246.

Venus rhomboïdes, *Penn. Brit. Zool.* iv. 97. t. lv. f. dextra.

Cuneus fasciatus, *Da Costa, Brit. Conch.* 204.

Inhabits the British seas.

3. CAPSA DEFLORATA.

Shells subcordate, shining, concentrically striolated and longitudinally striated. Epidermis somewhat whitish or yellowish, painted with cinereous letters or spots. Length one inch and a quarter; height one inch.

Venus deflorata, *Lister, Conch.* t. cccciv. f. 249; *Petiv. Gaz.* t. xciv. f. 8; *Penn. Brit. Zool.* iv. 96. t. lvii. f. 54.

Venus aurea, *Chem. Conch.* vii. t. xliii. f. 458; *Mont. Test. Brit.* 129; *M. & R. Trans. Linn. Soc.* viii. 90; *Flem. Edinb. Encycl.* vii. 95; *Dill. Desc. Cat.* 186; *Turt. Conch. Dict.* 247.

Venus nebulosa, *Pult. Cat. Dorset.* 54. t. xiii. f. 3.

Inhabits the western coasts of England and Ireland not uncommonly; Torbay; Plymouth Sound; Whitsand Bay; Falmouth Harbour; Weymouth; Little Hampton: Yaul, Cork, Bantry and Dingle Bays in Ireland.

4. CAPSA PERFORANS.

Shells subrhomboidal, roughish, anteriorly with concentric reticulated striæ. Epidermis whitish or yellowish brown. Length two inches; height one inch.

Venus perforans, *Mont. Test. Brit.* 127. t. iii. f. 6; *M. & R. Trans. Linn. Soc.* viii. 89; *Flem. Edinb. Encycl.* vii. 95; *Dill. Desc. Cat.* 206; *Turt. Conch. Dict.* 245.

Inhabits the Devonshire and Cornish seas; it perforates wood in Salcombe Estuary; in lime-rocks at Bantham and other parts of the coasts of Devon and Cornwall; and in red sandstone at Dawlish and Teignmouth.

5. CAPSA PULLASTRA.

Shells ovately oblong, with extremely delicate decussating striæ. Epidermis whitish or brown. Length two inches; height one inch and a half.

Venus Pullastra, *Chem. Conch.* vii. t. lxii. f. 439; *Wood, Trans. Linn. Soc.* vi. t. xvii. f. 11, 14; *Pult. Cat. Dorset.* t. i.

f. 8; *Mont. Test. Brit.* 125; *M. & R. Trans. Linn. Soc.* viii. 88; *Flem. Edinb. Encycl.* vii. 95; *Turt. Conch. Dict.* 245.

Venus Pullastra.

Venus Senegalensis, *Dill. Desc. Cat.* 206.

This species is extremely common in the British seas in deep water.

6. Capsa reticulata.

Shells ovate behind, sculptured with decussating striæ. Epidermis pale ferruginous, generally painted with rays, letters and spots. Length three; height two inches.

Venus reticulata, *Lister, Anim. Angl.* t. iv. f. 20; *Conch.* t. ccccxxiii. f. 271; *Da Costa, Brit. Conch.* 102. t. xiv. f. 4; *Dill. Desc. Cat.* 188.

Venus decussata, *Linn. Syst. Nat.* xii. 1135. no. 149; *Gmel. Syst. Nat.* 3294; *Pult. Cat. Dorset.* 34. t. vi. f. 4; *Donov. Brit. Shells,* t. lxvii.; *Mont. Test. Brit.* 124; *M. & R. Trans. Linn. Soc.* viii. 88; *Flem. Edinb. Encycl.* vii. 95; *Turt. Conch. Dict.* 244.

This species is extremely common in the European seas on deep sandy bottoms.

STIRPS V.

Shells subcordiform (somewhat heart-shaped), their cordiform impression perfect; the umbones nearly central, prominent and recurved; with no lamella before and behind the cardinal teeth, or only behind the cardinal teeth.

Genus 44. Crassina.

Crassina, *Lamarck, MSS.*

The shell more or less heart-shaped, equilateral; the hinge in one valve with one obtuse, the other valve with two obtuse teeth: the umbones are very much recurved, and are situated behind the middle of the shells.

1. CRASSINA BRITANNICA.

Shells rather convex, concentrically grooved; the grooves equidistant; the epidermis deep or pale chestnut, olive or yellowish-olive. Length one inch and three-eighths; height one inch.

Var. α. Valvarum margines internè denticulatæ.

Venus Danmonia, *Mont. Test. Brit. Suppl.* 45. t. xxix. f. 4; *Flem. Edinb. Encycl.* vii. 96; *Dill. Desc. Cat.* 167.

Venus sulcata, *Mont. Test. Brit.* 131; *M. & R. Trans. Linn. Soc.* viii. 81. t. ii. f. 2; *Turt. Conch. Dict.* 235.

Var. β. Valvarum margines internè tenuiter elevatæ, at non denticulatæ.

Venus Scotica, *M. & R. Trans. Linn. Soc.* viii. 81. t. ii. f. 3; *Mont. Test. Brit. Suppl.* 44; *Flem. Edinb. Encycl.* vii. 96; *Turt. Conch. Dict.* 236.

Var. α. The margins of the valves internally denticulated.

Var. β. The margins of the valves internally elevated, forming a slightly elevated rim; but are not denticulated.

This species is by no means uncommon on the south and western coasts of Devon, and on the northern coasts of Ireland and Scotland in deep water with a sandy bottom.

From the vast number of specimens in the collection of the British Museum, collected by Colonel Montagu, C. Prideaux, Esq., Mr. J. Cranch, Mr. Clealand and myself, I have not the least reason to doubt that they are mere incidental varieties; the rim occupies in Var. β. the same part exactly as the denticulations in Var. α.

Genus 45. CHIONE.

Cytherea ** *Lamarck.*

Shells subcordate, equilateral; the hinge of the right valve has four teeth, three of them converging and approximating at their bases; the other is solitary, situated a little remote from the others; the left valve has three divaricating teeth approximating at their bases; there are no lateral lamellæ; the anterior cardinal tooth in each valve is simple.

The tracheal tubes of the animal are united, equally broad and long, and are ciliated at their extremities.

I have been induced to separate this genus from the genus *Cytherea* of Lamarck, not only from the difference in the teeth of the hinge, but from the difference of the animals themselves; in his first division α. the anterior cardinal tooth is either channelled or denticulated.

1. CHIONE COCCINEA.

Shells rather thick; the epidermis chestnut, very smooth, concentrically very finely striolated, and longitudinally striolated. Length four; height three inches.

Venus chione, *Lister, Conch.* t. cclxix. f. 105; *Linn. Syst. Nat.* xii. 1131. no. 125; *Chem. Conch.* vi. t. xxxii. f. 343; *Gmel. Syst. Nat.* 3272; *Pult. Cat. Dorset.* 33. t. vi. f. 7; *Poli, Test. Sic.* ii. t. xx.; *Donov. Brit. Shells,* t. xvii.; *Mont. Test. Brit.* 115; *M. & R. Trans. Linn. Soc.* viii. 84; *Flem. Edinb. Encycl.* vii. 94; *Dill. Desc. Cat.* 178; *Turt. Conch. Dict.* 239.

Pecten glaber, *Da Costa, Brit. Conch.* 184. t. xiv. f. 7.

Cytherea chione, *Lam. Hist. Nat. des Anim. sans Vert.* v. 566.

Inhabits the Atlantic, European, Mediterranean and Adriatic seas; it is not uncommon on the south and western coasts of Devon, and the southern coasts of Wales.

2. CHIONE MINIMA.

Shells rather thick, slightly compressed, very smooth and glossy, concentrically striated; the epidermis flesh-coloured, with two red marginal spots and two white lines diverging from the umbones to the inferior aspect, forming the letter V reversed. Length a quarter of an inch; height three-eighths of an inch.

Venus minima, *Mont. Test. Brit.* 121. t. iii. f. 3; *M. & R.*

Trans. Linn. Soc. viii. 81 ; *Flem. Edinb. Encycl.* vii. 81 ; *Dill. Desc. Cat.* 166 ; *Turt. Conch. Dict.* 236.

This very rare species has hitherto only been found in the deep sea off Falmouth.

Genus 46. CYPRINA, *Lamarck.*

The shells obliquely cordate, equilateral ; the umbones obliquely curved : the hinge with three unequal teeth approximating towards their bases and divaricating above ; the lateral lamellæ placed far from the hinge, and in the left side is sometimes obsolete ; the cardinal ligament is more or less immersed under the umbones.

The animal is unknown to me.

1. CYPRINA ISLANDICA.

Shells thick obliquely, shortly cordate, anteriorly slightly angulated ; the epidermis pale fuscous or yellowish-brown, concentrically striated. Length four inches ; height three inches and a half.

Venus Islandica, *Lister, Anim. Angl.* t. iv. f. 22 ; *Conch.* t. cclxxii. f. 108 ; *Linn. Syst. Nat.* 1131. no. 24 ; *Chem. Conch.* vi. t. xxxii. f. 341 ; *Gmel. Syst. Nat.* 3271 ; *Pult. Cat. Dorset.* 33. t. vi. f. 5 ; *Donov. Brit. Shells,* t. lxxvii. ; *Mont. Test. Brit.* 114 ; *M. & R. Trans. Linn. Soc.* viii. 83 ; *Flem. Edinb. Encycl.* vii. 94 ; *Dill. Desc. Cat.* 176 ; *Lam. Hist. Nat. des Anim. sans Vert.* v. 556 ; *Turt. Conch. Dict.* 238.

Venus mercenaria, *Penn. Brit. Zool.* iv. 94. t. liii. f. 47.

Pecten crassus, *Da Costa, Brit. Shells,* 183. t. xiv. f. 5.

Cyclas Islandica, *Brug. Encycl. Méthod.* t. ccci. f. 1, *a, b.*

Inhabits the deep sandy coasts of the European seas ; is extremely common, but very rarely taken alive. I have, as well as Mr. J. Cranch, been out for many days in the Plymouth Sound and the coast of Cornwall in the trawl vessels, and although we have procured them abundantly, we never could meet with any having the animal.

Genus 47. CALISTA, *Poli*.

The shells roundly heart-shaped, their umbones very much reflexed ; the cardinal ligament nearly buried ; the hinge with two teeth in each valve ; those in the right valve nearly equal, the hinder one in the left valve much smaller than the anterior one.

The tracheal tubes equal, half-joined together ; the foot lance-shaped.

1. CALISTA VERRUCOSA.

Shells concentrically grooved ; the margins of the grooves thin, reflexed and transversely striolated, behind undulately rough. Epidermis dirty white, striolated with very slender, longitudinal, divaricating, fuscous or reddish-brown streaks. Length two and a half; height two and a half inches.

Venus verrucosa, *Lister, Conch.* t. cclxxxiv. f. 122 ; *Petiv. Gaz.* t. xciii. f. 7 ; *Linn. Syst. Nat.* 1130. no. 116 ; *Borlase, Cornw.* t. xxviii. f. 32 ; *Pult. Cat. Dorset.* 33. t. viii. f. 1 ; *Mont. Test. Brit.* 112, 574 ; *Flem. Edinb. Encycl.* vii. 94 ; *Dill. Desc. Cat.* 163 ; *Lam. Hist. Nat. des Anim. sans Vert.* v. 586 ; *Turt. Conch. Dict.* 231.

Venus Erycina, *Penn. Brit. Zool.* iv. 94. t. liv. f. 48.

Pecten strigatus, *Da Costa, Brit. Conch.* 185. t. xii. f. 1.

Pecten membranaceus, *Da Costa, Brit. Conch.* 193. t. xiii. f. 4.

Venus cancellata, *Donov. Brit. Shells,* t. lxiv., cxv.

Inhabits the European seas in deep sandy bottoms.

2. CALISTA CASINA.

Shells concentrically ridged ; the ridges distant from one another, reflexed and gradually decreasing behind, and with the interstices concentrically striated. Epidermis reddish-brown. Length and height two inches.

Venus casina, *Linn. Syst. Nat.* xii. 1130. no. 117 ; *Gmel. Syst. Nat.* 3269 ; *Lam. Hist. Nat. des Anim. sans Vert.*

v. 587; *Flem. Edinb. Encycl.* vii. 94; *Dill. Desc. Cat.* 165; *Turt. Conch. Dict.* 232.

This species inhabits the European seas in deep sandy bottoms.

Genus 48. HERMIONE.

The shells elongated, anteriorly truncated with the angles rounded. The hinge with three teeth in each valve, the anterior one in the right valve more or less imperfect. The tracheal tubes joined together, their extremities fringed. The foot lance-shaped.

1. HERMIONE GALLINA.

Shells cordate-trigonal, rounded above, whitish, radiated with red, and concentrically sulcated; the interstices elevated, painted alternately with white and red. Length one and a quarter; height one inch.

Venus Gallina, *Lister, Conch.* t. cclxxxii. f. 120; *Born. Mus.* 57. *Vig.* 6; *Linn. Faun. Suec.* 2114; *Syst. Nat.* 1130. no. 119; *Chem. Conch.* vi. t. xxv. f. 308–310; *M. & R. Trans. Linn. Soc.* viii. 82; *Lam. Hist. Nat. des Anim. sans Vert.* v. 591; *Dill. Desc. Cat.* 168; *Turt. Conch. Dict.* 234.

Venus rugosa, *Penn. Brit. Zool.* iv. 95. t. lvi. f. 50.

Pecten striatulus, *Da Costa, Brit. Conch.* 191. t. xii. f. 2.

Venus casina, *Pult. Cat. Dorset.* 33. t. viii. f. 2.

Venus striatula, *Donov. Brit. Shells,* t. lxviii.; *Mont. Test. Brit.* 113; *Flem. Edinb. Encycl.* vii. 94.

This species is very common; it inhabits the sandy coasts of the European Ocean.

2. HERMIONE LAMINOSA.

Shells elongated, somewhat compressed, concentrically striated; the interstices elevated, slightly rounded, reflexed near the umbones and sculptured with longitudinal, divaricating, narrow streaks. Epidermis yellowish-white. Length one and a quarter; height one and two-eighths of an inch.

Venus laminosa, *Laskey, Trans. Wern. Soc.* i. t. viii. f. 16; *Mont. Test. Brit. Supp.* 38; *Flem. Edinb. Encycl.* 94; *Turt. Conch. Dict.* 233.

This species is extremely rare; it inhabits the English, Scotch and Irish seas.

3. HERMIONE REFLEXA.

Shells elongated, slightly convex, concentrically sulcated; the interstices elevated, reflexed, behind more distant from each other, and undulated; the interstices and grooves sculptured with very narrow streaks. Epidermis yellowish-brown, ornamented with pale reddish bands. Length one and two eighths; height one inch.

Venus reflexa, *Laskey, Trans. Wern. Soc.* i. t. viii. f. 1; *Mont. Test. Brit. Supp.* 40; *Flem. Edinb. Encycl.* 94; *Turt. Conch. Dict.* 233.

This species, which I believe with *H. laminosa* to be extremely rare, is found on the southern coasts of Devon and Ireland, and the northern coasts of Scotland. I described both these species from specimens in the collection of Mr. Knox of Glasgow, who assured me that he had seen but two of the first and one of the last, taken by a friend of his in the Frith of Clyde.

Genus 49. ZUCLEÏCA.

The shells rounded, thick and slightly compressed; the umbones reflexed. The hinge with two lamelliform teeth in each valve, that in the hinder one in the left valve much smaller than the anterior one.

1. ZUCLEÏCA FASCIATA.

Shell concentrically ribbed; the ribs generally rounded, always very irregular; sometimes narrow and slightly reflexed. Epidermis yellowish, pale, fuscous or reddish-purple, generally painted with reddish divaricating rays. Length one inch; height seven-eighths of an inch.

Venus fasciata, *Lister, Conch.* t. ccxcv. f. 132.

Venus Paphia, *Mont. Test. Brit.* 170.

This species is not uncommon on most of the shores of Britain in deep water with sandy bottoms.

Genus 50. PASIPHAË.

The shell trigonal, inclining to cordate (heart-shaped) anteriorly, slightly acuminated but rounded; the umbones reflexed; the ligament buried; the hinge with three unequal teeth in each valve, the lateral ones lamelliform, the hinder one in one valve minute.

1. PASIPHAË PENNANTIA.

Shells opake, divaricatedly sulcated and concentrically striolated; the epidermis brown; internally white or flesh-coloured, in the middle purple. Length one half; height three-eighths of an inch.

Venus ovata, *Penn. Brit. Zool.* iv. 97. t. lvi. f. 56; *Walk. Test. Min. Rar.* f. 82; *Pult. Cat. Dorset.* t. i. f. 15; *Mont. Test. Brit.* 120; *M. & R. Trans. Linn. Soc.* viii. 85; *Flem. Edinb. Encycl.* vii. 94; *Dill. Desc. Cat.* 171; *Turt. Conch. Dict.* 239.

This species is very common in the Irish, but very rare in the Devonshire and Cornish seas; it is most commonly found in very deep water; but in Dingle Bay, Ireland, I found them very abundantly under the sand at the lowest tide.

STIRPS VI.

Shells cordiform, very convex; umbones nearly central, very prominent and recurved; no lateral lamellæ before the cardinal teeth.

The animal with its tracheal tubes not extending beyond the valves; their extremities fringed; the foot is rounded and obtuse.

Genus 51. Isocardia.

Shells inequivalve, cordiform and ventricose; their umbones distant from each other, divaricating and involuted; the hinge with two teeth in each valve entering one another; one is placed under the umbo in each valve; one lateral elongated lamella in each valve.

1. Isocardia Cor.

Shells cordate-globose, smooth, fulvous; the umbones whitish. Length two and three-quarters; height three inches.

Chama Cor, *Lister, Conch.* t. cclxxv. f. 11; *Linn. Syst. Nat.* xii. 1137; *Mont. Test. Brit.* 134, 579; *Flem. Edinb. Encycl.* vii. 96; *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 31; *Dill. Desc. Cat.* 212; *Turt. Conch. Dict.* 32.

Cardium humanum, *Linn. Syst. Nat.* x. 682.

Cardita Cor, *Brug. Encycl. Méth.* 403. t. ccxxxii. f. 1. *a*, *b*, *c*, *d*.

Isocardia globosa, *Lam. Syst. des Anim. sans Vert.* 118.

Inhabits the Atlantic, European, Adriatic and Mediterranean seas; it has been found at Bantry Bay, Ireland, and in the Hebrides.

STIRPS VII.

Shells somewhat rounded or subglobose; umbones nearly central, prominent and recurved before; the cordiform impression imperfect; both valves behind the umbones are more or less channelled.

Genus 52. Loripes, *Poli, Cuvier.*

Shells somewhat rounded, slightly convex; the cardinal ligament internal; the hinge with one simple straight tooth in the left, and two divaricating simple ones in the left valve;

both valves are channelled behind the umbones which extend from them to the posterior aspects of the shell.

The animal with a solitary fistulose tracheal tube fringed at its extremity; the branchiæ one-lobed and half-joined together; the foot very much elongated, round and attenuated towards its extremity; the lips are either wanting or very obsolete.

1. Loripes lacteus.

Shells thin, sculptured with very narrow striæ; the epidermis pale fuscous. Length and height three-quarters of an inch.

Tellina lactea, *Linn. Syst. Nat.* 1119. no. 69; *Pult. Cat. Dorset.* 30. t. v. f. 9; *Mont. Test. Brit.* 70. t. ii. f. 4; *Poli, Test.* i. 47. t. xv. f. 26–29; *M. & R. Trans. Linn. Soc.* viii. 58; *Flem. Edinb. Encycl.* vii. 92; *Wood, Gen. Conch.* i. 187; *Dill. Desc. Cat.* 99; *Turt. Conch. Dict.* 176.

This species is not uncommonly found on the western and southern coasts of Devon and Cornwall, generally in very deep water.

Genus 53. Lucina.

Lucina, *Bruguière, Lamarck, Cuvier.*

Shells nearly round, rather convex; the hinge in both valves bidentate; the anterior tooth in the left, the posterior tooth in the right, notched; the ligament hinge-shaped and immersed; both valves behind the umbones are very slightly channelled.

The animal is unknown to me.

I separated this genus from *Tellina*, under the name of *Egraca*, prior to the publication of Lamarck's last work, and before I had seen his "Système des Animaux sans Vertèbres."

1. Lucina Radula.

Shells orbicular, sculptured with concentric lamellæ, the interstices sculptured with elevated concentric striolæ (narrow lines). Epidermis pale fuscous. Length and height one inch and a half.

Tellina Radula, *Mont. Test. Brit.* 68. t. ii. f. 1, 2; *Pet. Gaz.* t. xciii. f. 18; *Favanne, Conch.* t. xlviii. f. 3; *M. & R. Trans. Linn. Soc.* viii. 54; *Flem. Edinb. Encycl.* vii. 90; *Wood, Gen. Conch.* i. 183. t. xliii. f. 4, 5; *Turt. Conch. Dict.* 175.

Venus borealis, *Donov. Brit. Shells,* t. cxxx.

Lucina Radula, *Lam. Hist. Nat. des Anim. sans Vert.* v. 541.

Tellina spuria, *Dill. Desc. Cat.* 175.

This species is found abundantly in the deep water on sandy bottoms on the western and southern coasts of Devon and Cornwall, and southern coast of Ireland.

2. Lucina divaricata.

Shells orbicular, subglobose, antiquated, sculptured with a double series of oblique striæ (lines). Epidermis white. Length and height one inch and three-quarters.

Tellina divaricata, *Gmel. Syst. Nat.* 74; *Bonanni, Recr.* t. iii. f. 349; *Chem. Conch.* vi. 134. t. xiii. f. 129; *Poli, Test.* i. t. xv. f. 25.

Lucina divaricata, *Brug. Encycl. Méthod.* t. cclxxxiv. f. 4, *a*, *b*.

Inhabits the Mediterranean and southern seas of Scotland, between Arran and Bute and the Mull of Cantire. I described this species from one full-grown specimen in the collection of Mr. Knox of Glasgow. He had three or four young ones taken in the same situation mentioned above.

Genus 54. Thyasira.

Shells subglobose; the hinge in each valve with one obscure tooth; the ligament hinge-shaped and immersed; both valves behind the umbones are strongly channelled.

The animal is unknown to me.

1. Thyasira flexuosa.

Shells very thin, transparent, somewhat antiquated, very finely concentrically striolated; with a groove extending from the umbones to their inferior aspects; the epidermis snowy white. Length and breadth three-eighths of an inch.

Tellina flexuosa, *Mont. Test. Brit.* 72; *M. & R. Trans. Linn. Soc.* viii. 56; *Flem. Edinb. Encycl.* vii. 91; *Wood, Gen. Conch.* i. 188. t. xlviii. f. 1, 8; *Dill. Desc. Cat.* 188; *Turt. Conch. Dict.* 177.

Thyasira flexuosa, *Leach, Lam. Hist. Nat. des Anim. sans Vert.* v. 492.

Amphidesma flexuosa, *Lam. Hist. Nat. des Anim. sans Vert.* v. 492.

This species is found on the western and southern coasts of Devon and the southern coasts of Ireland in deep water on sandy bottoms.

STIRPS VIII.

Shells subcordate; the cordiform impression perfect; the umbones nearly central, prominent, and anteriorly curved; no lamella before and behind the cardinal teeth.

Genus 55. AMPITHÆA.

1. AMPITHÆA EXOLETA.

The shells sculptured with narrow, concentric grooves, which are roughish; the epidermis whitish, more or less radiated with pink and red. Length and height two or three inches.

Venus exoleta, *Lister, Conch.* t. ccxci. f. 127. ccxciii. f. 129; *Petiv. Gaz.* t. xciii. f. 15; *Gualt. Test.* t. lxxv. f. F.; *Born. Test.* t. v. f. 9; *Linn. Faun. Suec.* 2145; *Syst. Nat.* xii. 2134. no. 142; *Favanne, Conch.* t. xlviii. f. F. *l.*; *Chem. Conch.* vii. 18. t. xxxviii. f. 102–104; *Schroët. Einl.* iii. 142; *Brug. Encycl. Méthod.* t. cclxxix. f. 5; *Pult. Cat. Dorset.* 34. t. viii. f. 5; *Donov. Brit. Shells,* t. xlii. f. 1; *Mont. Test. Brit.* 116; *M. & R. Trans. Linn. Soc.* viii. 87; *Flem. Edinb. Encycl.* vii. 94; *Dill. Desc. Cat.* 195; *Turt. Conch. Dict.*

Pecten capillaceus, *Da Costa, Brit. Conch.* 187. t. xii. f. 5.
Venus sinuata, *Gmel. Syst. Nat.* 3285.
Venus albida, *Gmel. Syst. Nat.* 3287.
Venus tincta, *Solander, MSS.*
Var. β. The colour dirty-white, painted with irregular ferrugineous, tinged with fuscous spots.
Var. γ. The colour pink, inclining to reddish, immaculate.

STIRPS IX.

Shells rounded, with no cordiform impression; the umbones prominent and nearly central and recurved, with no lamella before and behind the cardinal teeth.

Genus 56. GLOCOMENE.

Shells rounded; the hinge in one valve with three teeth, the hinder one very obsolete; the middle one notched, the anterior one simple and diverging; in the other valve with two teeth, the anterior one notched, the hinder one simple and diverging.

The animal is unknown to me.

1. GLOCOMENE MONTAGUANA.

Shells smooth, thin, semitransparent, sculptured with extremely slender, concentric striolæ (little lines). Length and height one inch.

Epidermis snowy white, white or yellowish-white.

Tellina rotundata, *Mont. Test. Brit.* 71. t. ii. f. 3; *M. & R. Trans. Linn. Soc.* viii. 56; *Flem. Edinb. Encycl.* vii. 92; *Wood, Gen. Conch.* i. 187; *Dillw. Desc. Cat.* 99; *Turt. Conch. Dict.* 176.
Tellina undata, *Pult. Cat. Dorset.* 30. t. v. f. 8.

Inhabits the western coasts of Devonshire, the southern or Ireland in deep sea on sandy bottoms.

STIRPS X.

Shells somewhat compressed, rather orbicular or orbicularly triangular; the umbones nearly central; the cardinal teeth diverging; with a lamella before or behind the cardinal teeth in one or both valves.

Genus 57. Cyrachæa.

Shell orbiculate, triangular, cordiform impression elongate; hinge in one valve with two teeth and lateral lamella; in other valve two teeth, and no lateral lamella. Animal unknown.

1. Cyrachæa spinifera.

Shells with very many parallel, equidistant lamellæ, very slightly reflexed, confluescent together in both valves, and arranged in a double series of spines; the epidermis yellowish-white. Length five-eighths; height half an inch.

Venus spinifera, *Mont. Tesi. Brit.* 577.—*Supp.* t. xvii. f. 1; *M. & R. Trans. Linn. Soc.* viii. 78; *Flem. Edinb. Encycl.* vii. 95; *Dill. Desc. Cat.* 163; *Turt. Conch. Dict.* 231.

This species, which is extremely rare, is found only on the southern coasts of Devon in deep water, on a sandy bottom.

Genus 58. Cydippe.

The shells orbicular, compressed and thick; no cordiform impression; the right more convex than the left valve; the hinge in both valves with two teeth; the anterior one in the right notched, and the lateral lamellæ very minute, the left one also with two teeth; the anterior one notched, and with more elevated, thicker lateral lamellæ.

1. Cydippe Listeriana.

Shells sculptured with innumerable, concentric, very narrow lamellæ, the interstices sculptured with very fine elevated lines;

the epidermis yellowish, generally painted with divaricating or diverging rays. Length two and a half inches; height one inch and a quarter.

Venus crassa, *Lister, Conch.* ccxcix. f. 136; *Gmel. Syst. Nat.* 3288.

Pecten depressior, *Da Costa, Brit. Conch.* 194. t. xiii. f. 4, dextra.

Tellina rigida, *Pult. Cat. Dorset.* 30. t. viii. f. 3; *Donov. Brit. Shells,* t. ciii.

Tellina crassa, *Mont. Test. Brit.* 65; *M. & R. Trans. Linn. Soc.* viii. 55; *Flem. Edinb. Encycl.* 95; *Wood, Gen. Conch.* i. 186. t. xl. f. 1; *Dill. Desc. Cat.* 96; *Turt. Conch. Dict.* 173.

Inhabits deep water on sandy coasts; very common.

STIRPS XI.

Shells equivalve, cordiform; their umbones very prominent and recurved; the ligament exterior and hinge-shaped; the cardinal teeth not diverging; a lamella before and behind the cardinal teeth.

Genus 59. Cardium.

Cardium, *Auctorum.*
Cerastes, *Poli.*

Shells with equal valves; the umbones very prominent and recurved; the ligament exterior and hinge-shaped; the hinge with two alternately placed teeth, the first behind, the second before; the first remote from the other teeth.

The animal with its tracheal tubes somewhat fistulose, short, and not produced beyond the hinder aspect of the shell; their extremities fringed, the under one with a pendulose valve at its bottom: the hinder margin of the mantle is denticulated, and with its double replications covers the tubes: the foot is conic, very much elongated and geniculated.

1. CARDIUM ACULEATUM.

Shells nearly cordate, oblique; the ribs distant and convex, with an excavated line; the anterior ribs spinous, the hinder ones bearing papillæ; the interstices flattened and transversely striated; the epidermis fuscous brown, painted with rays and spots of the same colour, more intense. Height four; circumference eleven inches.

Cardium aculeatum, *Linn. Syst. Nat.* xii. 1122. no. 78; *Penn. Brit. Zool.* iv. 90. t. 1. f. 37; *Da Costa, Brit. Conch.* 175; *Chem. Conch.* vi. t. xv. f. 155–157; *Gmel. Syst. Nat.* 3247; *Brug. Encycl. Méthod.* t. ccxcviii. f. 1; *Donov. Brit. Shells,* t. vi.; *Mont. Test. Brit.* 77; *M. & R. Trans. Linn. Soc.* viii. 62; *Flem. Edinb. Encycl.* vii. 92; *Wood, Gen. Conch.* i. 208. t. xlix. f. 1, 2; *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 7; *Dill. Desc. Cat.* 207; *Turt. Conch. Dict.* 28.

This species is extremely common in the European seas in deep water on sandy bottoms.

In young specimens the hinder spines are much sharper than in the adults.

2. CARDIUM ECHINATUM.

Shells rotundately-cordate, nearly equilateral, with very much elevated ribs, placed very near to each other, with an excavated line somewhat interrupted, and armed with very numerous approximating inflexed spines, the hinder ones obtuse; the interstices slightly concave, and wrinkled. The epidermis ferrugineous brown, more or less mixed with white, and generally concentrically banded with ferrugineous brown. Length and height two inches.

Cardium echinatum, *Lister, Anim. Angl.* t. v. f. 33; *Conch.* t. cccxxiv. f. 161; *Linn. Faun. Suec.* 2139; *Syst. Nat.* xii. 1122. no. 79; *Murray, Amœn. Acad.* t. ii. f. 19; *Müll. Zool. Dan.* 46. t. xiii. f. 12; t. xiv. f. 1–4; *Penn. Brit. Zool.* iv. 90; *Gmel. Syst. Nat.* 3247; *Da Costa, Brit. Conch.* 176. t. xiv. f. 2; *Chem. Conch.* vi. t. xvi. f. 158; *Pult. Cat. Dorset.* 30. t. vi. f. 2; *Donov. Brit. Shells,*

t. cvii. f. 1; *Mont. Test. Brit.* 78; *Flem. Edinb. Encycl.* 92; *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 8; *Dill. Desc. Cat.* 116; *Turt. Conch. Dict.* 29.

Cardium ciliare, *Linnæus, Pennant, Chemnitz, Schroëter, Gmelin, Bruguière, Donovan, Maton and Racket.*

Testa junior.

Cardium ciliare, *Linn. Syst. Nat.* 1112; *Penn. Brit. Zool.* iv. 90. t. l. f. 39; *Chem. Conch.* vi. 178. t. xvii. f. 171, 172; *Donov. Brit. Shells,* i. t. xxxii. f. 2; *Mont. Test. Brit.* 79; *M. & R. Trans. Linn. Soc.* viii. 64; *Pult. Cat. Dorset.* 31. t. iv. f. 1; *Flem. Edinb. Encycl.* vii. 92; *Wood, Gen. Conch.* i. 209. t. xlix. f. 3, 4.

Cardium parvum, *Da Costa, Brit. Conch.* 177; *Petiv. Gaz.* t. xx. f. 1; *Brug. Encycl. Méthod.* t. ccxcviii. f. 4.

Testa junior, *Dill. Desc. Cat.* 116; *Turt. Conch. Dict.* 29.

This species is found abundantly in the British and Mediterranean seas in very deep water on sandy bottoms, Plymouth Sound, Torbay, Falmouth, Penzance, Friths of Forth and Clyde, Cork Bay, Bantry Bay, Dingle Bay and Salcombe Bay.

The ribs of the young shells are angular, and farther apart from each other; and the spines are sharper and much longer proportionally than in the adults.

The animal is pale flesh-coloured, sometimes slightly testaceous; the respiratory tubes are ciliated; the cilia nearest to the apertures flesh-coloured, and sometimes, but rarely, pale testaceous; the foot very long, cinnabar red, its base paler.

3. CARDIUM TUBERCULATUM.

Shells subcordate, tumid, with ovate ribs placed distantly from each other, transversely striated, and knotted behind; the tubercles at the posterior aspect larger and placed nearer together; the interstices with arched striæ. Epidermis pale yellowish-brown, banded and spotted with chestnut-brown, the inferior and hinder aspects chestnut-brown, about the umbones milk-white. Length and height three inches and a quarter.

Cardium tuberculatum, *Lister, Conch.* t. cccxxix. f. 166; *Rumph. Mus.* t. xlviii. f. 11; *Gualt. Test.* t. lxxi. f. M.;

Seba, Mus. iii. t. f. 7; *Linn. Syst. Nat.* 1122. no. 81; *Gmel. Syst. Nat.* 3248; *Pult. Cat. Dorset.* 31. t. ii. f. 2; *Mont. Test. Brit.* 79, 568; *M. & R. Trans. Linn. Soc.* viii. 64; *Lam. Syst. des Anim. sans Vert.* vi. part. i. 8; *Flem. Edinb. Encycl.* 91; *Wood, Gen. Conch.* i. 210. t. l. f. 1, 2; *Dill. Desc. Cat.* 117; *Turt. Conch. Dict.* 28.

Testa junior.

Cardium nodosum, *Mont. Test. Brit.* 81; *Flem. Edinb. Encycl.* vii. 92.

Testa junior, *Turt. Conch. Dict.* 29.

This species is found abundantly in the British and Mediterranean seas; on our coasts at Dawlish, Torbay, Falmouth, Penzance, Weymouth, Torquay, England; Friths of Forth and Clyde, Scotland; Yawl, Bantry, Cork, and Dingle Bays, Ireland.

4. Cardium edule.

Shells thick, rotundately-cordate, oblique, somewhat antiquated; with twenty-six rounded ribs, rather approximating, somewhat depressed, and transversely sculptured with elevated lines; the interstices smooth. Epidermis whitish or yellowish-white, often bluish behind, and towards the hinge deep red. Length two inches; height two inches and three quarters.

Cardium edule, *Linn. Faun. Suec.* 2141; *Linn. Syst. Nat.* xii. 1124. no. 90; *Penn. Brit. Zool.* iv. 91. t. l. f. 42; *Chem. Conch.* vi. t. xix. f. 194; *Gmel. Syst. Nat.* 3252; *Da Costa, Brit. Conch.* 180. t. ii. f. 1; *Pult. Cat. Dorset.* 30. t. ii. f. 1; *Mont. Test. Brit.* 76; *M. & R. Trans. Linn. Soc.* 65; *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 12;? *Flem. Edinb. Encycl.* vii. 91; *Dill. Desc. Cat.* 114; *Turt. Conch. Dict.* 30.

Cardium rusticum, *Lister, Conch.* t. cccxxxiv. 171; *Donov. Brit. Shells,* t. cxxiv. f. 2; *Wood, Gen. Conch.* i. 226. t. lv. f. 4.

This species is extremely common in the European, Atlantic, Mediterranean and Adriatic seas.

I have some doubts whether the species described by Lamarck be the same with our species, as his description does not apply to those found on our own coasts: I think it possibly applies to the following new species.

5. Cardium tenue.

Shells thin, rotundately-cordate, with thirty rounded ribs; the ribs and the interstices between them with transverse elevated, irregular, interrupted, broken, elevated lines, those behind very much elevated; the epidermis pale ferrugineous-testaceous; the umbones purplish. Length one inch and three-eighths; height one inch and two-eighths.

Var. β. The epidermis entirely orange.

I found this new species in 1821, in salt pools on a green marine conferva, very near the sea, near Bexhill in Sussex. The inside is purplish, the margins chestnut.

Var. β. was discovered by C. Stokes, Esq., at Limington, in great abundance.

6. Cardium zonatum.

Shells rotundately-cordate, semitransparent, with the ribs approximating and broadly rounded, sculptured with transverse elevated lines; the interstices or grooves simple. Length two-eighths and a quarter of an inch; height three-eighths of an inch.

Cardium fasciatum, *Mont. Test. Brit. Suppl.* 30. t. xxvii. f. 6; *Flem. Edinb. Encycl.* vii. 92; *Wood, Gen. Conch.* i. 215; *Dill. Desc. Cat.* 130; *Turt. Conch. Dict.* 32.

Var. β. The ribs on the hinder and sometimes also on the lower aspect tuberculated.

This species is found rather rarely on the sandy shores of England, Wales, Scotland and Ireland.

7. Cardium exiguum.

Shells obliquely cordate, somewhat angulated; the hinder aspect very short, with twenty-two tuberculated ribs; the interstices with excavated punctures. Epidermis dirty white or brown. Length five-eighths of an inch; height half an inch.

Cardium exiguum, *Lister, Conch.* t. cccxvii. f. 154; *Walker,* *Test. Min. Rar.* f. 38; *Gmel. Syst. Nat.* 3255; *Pult. Cat. Dorset.* t. ii. f. 11; *Mont. Test. Brit.* 82; *M. & R. Trans. Linn. Soc.* viii. 61; *Flem. Edinb. Encycl.* vii. 91; *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 14; *Wood. Gen. Conch.* i. 212; *Dill. Desc. Cat.* 114; *Turt. Conch. Dict.* 31.

Cardium pygmæum, *Donov. Brit. Shells,* t. xxxii. f. 3.

This species is occasionally found on the southern coasts of Devon and Ireland. Salcombe Bay, Col. Montague; Falmouth, Mr. J. Cranch; Weymouth, Dr. J. Goodall; Cork Bay, J. Drummond, Esq.; Bantry Bay, Miss Hutchings; Dingle Bay, myself.

8. CARDIUM LÆVIGATUM.

Shells very high, short, smooth, sculptured anteriorly and posteriorly with very obsolete ribs and very fine divaricating lines; the epidermis yellowish-brown or olive-brown. Length two inches; height two inches and a half.

Cardium lævigatum, *Lister, Anim. Angl.* t. v. f. 32; *Conch.* cccxxxii. f. 169; *Pet. Gaz.* t. xciii. f. 10; *Linn. Syst. Nat.* xii. 1123. no. 88; *Penn. Brit. Zool.* iv. 91. t. l. f. 39; *Pult. Cat. Dorset.* 31. t. vii. f. 6; *Donov. Brit. Shells,* t. lxxx.; *Mont. Test. Brit.* 80; *Flem. Edinb. Encycl.* vii. 91; *Wood, Gen. Conch.* i. 222. t. liv. f. 1; *Dill. Desc. Cat.* 123.

Cardium lævigatum, *Turt. Conch. Dict.* 31.

Cardium fluviatile, *Gmel. Syst. Nat.* 3255.

This species is extremely common in the British seas, but is found most abundantly in estuaries.

FAMILY XI. UNIONIDÆ.

Shells with the valves elongated, equivalve; the umbones anterior; the ligament external and hinge-shaped; the epidermis leathery-membranaceous.

The tubes of respiration rudimentary; the lower one fringed; the orbicular muscle with a double fringe.

The umbones in young shells are very frequently wrinkled or plicated.

All the genera of this family inhabit fresh-waters, and are found in rivers, torrents, lakes and marshes. Linnæus and his followers referred all of them to their artificial genera, *Mya* and *Mytilus*.

The species of this family have particularly engaged my attention, from the various opinions entertained respecting them by different authors; and by means of a very extended series collected from every part of Great Britain, I have been enabled to clear up all doubts as to the characters of the species, and to the varieties to which they are all more or less subject.

I must return my warmest thanks to the following persons: to the Right Hon. Sir Joseph Banks; to Miss Bennet; to the Rev. J. Bulwer; to J. S. Henslow, Esq., Professor of Natural History, Cambridge; to T. Brightwell, Esq.; and lastly to Dr. F. Granger, for the very fine series of growth and varieties of the species, which all of them were so good as to furnish me from the various localities.

Genus 60. DAMARIS.

Shells transverse, oblong, curved, equivalve, and inequilateral; the umbones generally decorticated; the hinge with one short, compressed, slightly striated cardinal tooth.

The orbicular muscles of the mantle unite together before the anterior adductor muscle at their posterior extremities, which are loose; the abdomen is covered by a tendinous expansion; the foot lamelliform, rounded at its extremity.

Under the cardinal ligament the valves are furnished with lamellæ, which are extremely fine in our indigenous species, and often obsolete; but in some of the North American species these lamellæ are very much developed, and lock into each other.

All the species of this genus bear pearls.

1. DAMARIS ELONGATA.

Shells with their valves obtusely angulated, slightly pressed together above and widely emarginated below; the epidermis black or fuscous black. Length five inches; height two inches and a half.

Mya margaritifera, *Lister, Anim. Angl. App.* t. i. f. 1; *Conch.* cxlix. f. 4; *Linn. Faun. Suec.* 2130; *Syst. Nat.* xii. 1112. no. 29; *Penn. Brit. Zool.* iv. 80. t. xliii. f. 18; *Drap. Hist. Nat. des Moll. terrest. et fluv.* 133. t. ii. f. 5, junior; *Da Costa, Brit. Conch.* 225. t. xv. f. 3; *Donov. Brit. Shells,* t. lxxiii.; *Mont. Test. Brit.* 33; *M. & R. Trans. Linn. Soc.* viii. 40; *Flem. Edinb. Encycl.* viii. 87; *Wood, Gen. Conch.* i. 107. t. xxiii.; *Dill. Desc. Cat.* 52; *Turt. Conch. Dict.* 106.

Unio elongata, *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 70.

The shells without the epidermis are pearly, and inside polished, pearly and rosy.

Mantle brown, inclining to luteous; its fringe deep brown; orbicular muscle behind the middle, dirty white; the adductor muscles whitish; abdomen silvery white; branchiæ dirty luteous; foot subluteous, its base lineolated with pale fuscous; lips dirty luteous.

Inhabits rapid, rocky rivers and torrents. It occurs in the rivers Dun or Avon, in the Dart, in the Exe near Tiverton, and the Yalm, in Devon; in several of the Cornish rivers; in the river Wye, near Hereford; in the Irt, Cumberland; in the Conway, Wales; in the Clyde, in rivers near Perth, and in the Tay, Scotland; in the Ban, Ireland, &c.

This species is undoubtedly the *Mya margaritifera* of Linnæus, as he quotes Lister's 'Historia Concharum,' t. 149. f. 4, where an exact figure is given.

In young specimens the anterior, lower and posterior margins of the valves are submembranaceous and inclining to olive colour; their inner surface is also iridescent.

This species, in common with its exotic congeners, produces excellent pearls, which are often sent to India, and reimported as oriental pearls. There was formerly a pearl fishery in the Tay, and there is one at present in North Wales, which is said to produce a very considerable revenue to the proprietor, who, I have been told, is a female.

I have adopted Lamarck's specific name as more appropriate, as it is certainly longer than any other species, and all of them bear pearls.

Genus 61. Unio.

Unio, *Bruguière, Lamarck, Cuvier, Say, Rafinesque.*

Shells moderately thick, ovate, acuminated behind; the hinge with a short, lamelliform, cardinal tooth in each valve, wrinkled, or with many notches behind; in the right valve, under the cardinal ligament, is an elongated lamella; in the left are two elongated ligaments, which receive the right lamella between them; the epidermis thin; the hinder muscular impression compound.

The orbicular muscles of the mantle join each other behind the posterior adductor muscle and above the anterior adductor; the branchiæ are unequal; the outer ones, which are the smallest, are joined even to their posterior extremities with the orbicular muscles, forming the superior respiratory or tracheal tube perfect; the abdomen is covered by a membrane; the foot is acutely lamelliform.

1. Unio ovalis.

Shells with their valves oval, the cardinal teeth wrinkled, the right one compressed, the left one with its apex notched; the anterior lacinia excavated beneath, receiving the right one; the epidermis pale fuscous luteous, radiated with luteous-greenish, fuscous or black. Length four inches; height two inches.

Mya ovalis, *Lister, Anim. Angl. App.* f. 6; *Conch.* t. cxlvii. f. 2; *Donov. Brit. Shells,* t. cxxii. f. 1, 3; *Flem. Edinb. Encycl.* vii. 87.

Mya ovata, *Mont. Test. Brit.* 31, 563; *M. & R. Trans. Linn.*

Soc. viii. 39 ; *Wood, Gen. Conch.* i. 105. t. xix. f. 5 ; *Dill. Desc. Cat.* 50 ; *Turt. Conch. Dict.* 106.

Mantle pale fuscous luteous ; the orbicular muscle whitish, often externally or entirely saffron ; the fringe blackish ; the branchiæ dirty saffron, inclining to luteous ; the lips hyaline or dirty luteous ; the abdomen whitish ; the foot white or saffron.

This species, of which I have never seen any continental specimens, lives in slowly flowing waters ; it is found abundantly in the Thames, the New River, in the Croydon and Surrey canals ; very plentiful in the river Avon above and at Bath ; and is likewise found in the river Mole in Surrey.

Those from the Avon and Mole are thicker than those from the other localities, and are generally covered with a very black or deep brown epidermis. Young specimens are always more or less tinted with pale green.

Unio ovalis is often placed in cabinets as the *U. Pictorum,* from which it may readily be distinguished by its wedge-shape, by the abruptness with which it is narrowed behind, and by the oblique notch in the tooth in its left valve.

2. UNIO PICTORUM.

Shells with their valves ovate-oblong, anteriorly rhomboidally attenuated, the extremity obtusely acute ; the cardinal teeth wrinkled and serrated ; the right one lamelliform, the left excavated beneath, receiving the right one ; the epidermis olive, yellowish or pale fuscous. Length four inches ; height one and three-quarters, and more rarely two inches.

Mya Pictorum, *Lister, Anim. Angl.* t. ii. f. 30 ; *App.* t. i. f. 4 ; *Conch.* t. cxlvi. f. 1. cxlvii. f. 3 ; *Pet. Gaz.* t. xciii. f. 9 ; *Valentine, Mus.* t. xiv. f. 15 ; *Bonanni, Recr.* t. ii. f. 40, 41 ; *Ginann. Op. Port.* t. iv. f. 16 ; *Linn. Faun. Suec.* 2129 ; *Syst. Nat.* xii. 1112. no. 28 ; *Murray, in Amœn. Acad.* viii. t. ii. f. 6 ; *Schroët. Fluss.* t. iv. f. 6 ; *Penn. Brit. Zool.* iv. 79. t. xliii. f. 17 ; *Da Costa, Brit. Conch.* 228. t. xv. f. 4 ; *Brug. Encycl. Méthod.* ccxlviii. f. 4 ; *Donov. Brit. Shells,* t.

clxxiv.; *Stürm. Deutsch. Faun.* vi. no. 2. t. *a, b, c.*; *Flem. Edinb. Encycl.* vii. 88; *Wood, Gen. Conch.* i. 104. t. xix. f. 3, 4; *Dill. Desc. Cat.* 49; *Turt. Conch. Dict.* 106.

Mya ovalis, *Pult. Cat. Dorset.* 27. t. xii. f. 4; *Donov. Brit. Shells,* t. lxxxix.; *Mont. Test. Brit.* 31.

Mya batava, *Mont. Test. Brit.* 36; *M. & R. Trans. Linn. Soc.* viii. 37; *Wood, Gen. Conch.* i. 103. t. xix. f. 1, 2.

Unio Pictorum, *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 79.

Mantle dirty luteous; the orbicular muscle saffron, fringed with saffron coloured, but black behind; the fringes of the respiratory tubes pale; branchiæ dirty saffron; lips transparent, saffron-coloured; abdomen silvery white; the foot bluish-dusk, its extremity luteous.

The usual form of this shell is elongate, slightly compressed and gradually narrower behind. Some specimens are much compressed, especially posteriorly, and others resemble *Unio ovalis* in their external form; but may generally be distinguished by the broad excavation on its lower aspect, which is very rarely wanting.

As Linnæus has cited the figures of Lister and Bonanni, I feel perfectly assured that this species is his *Mya Pictorum*; and having examined Montague's specimen of Maton and Racket's *Mya Batava,* I am equally certain that it is utterly impossible to separate it from this species.

Lamarck's *Unio Batava* is common in the Seine, and is decidedly a distinct species.

The "*Musculus fluviatilis* è fluvio Tamesi ad Battersey," *List. Hist. Nat. Conch.* t. cxlix., is merely a distorted variety of this species: Lister's specimen is in the British Museum. I have twice found between Lambeth Stairs and the Red-house in Battersea Fields, specimens much resembling Lister's, and I have received similar varieties passing into the common one, from my worthy friend, the Rev. J. Bulwer, who found them plentifully in the river Bure, and in a stream near Erpingham in Norfolk.

Unio Pictorum is common in the Thames, the New River, the Medway, in the Mole, near Cobham in Surrey, in the Norfolk localities mentioned above, in the Wye at Hereford, and in the Cam at Cambridge: in the last-mentioned localities it occurs but sparingly. These were sent to me by my friend Professor Henslow of Cambridge.

Genus 62. ANODONTES.

Anodontes, *Bruguière, Cuvier.*
Anodonta, *Lamarck, Say, Rafinesque,* &c.

Shells equivalve, equilateral, elongate; the hinge straight and toothless; the cardinal lamina is smooth, anteriorly truncated or ending in a sinus, terminating the anterior aspect: the two muscular impressions are lateral, remote from one another, and paired or doubled; the cardinal ligament is straight exteriorly, with its anterior extremity passing down in a sinus of the cardinal ligament.

The orbicular muscles of the mantle are united behind the posterior and above the anterior adductor muscle; the branchiæ are unequal; the exterior ones smallest, and connected at their hinder extremities with the orbicular muscles, forming the superior respiratory or tracheal tube complete and entire: the abdomen is covered with a very thin membrane; the foot is acuminated and lamelliform.

1. ANODONTES EUROPÆA.

Shells with their valves somewhat ovately wedge-shaped, behind (especially in the young ones) with angulated wings; the epidermis fuscous inclining to luteous, radiated with black; or brown or intense deep black-brown, and not radiated.

Mytilus cygneus, *Lister, Anim. Angl. App.* t. i. f. 3; *Conch.* t. clv. f. 11; *Gualt. Test.* t. vii. f. F.; *D'Argenv. Conch.* t. xxxi. f. 10, sin.; *Penn. Brit. Zool.* iv. 113. t. lxviii. f. 78; *Da Costa, Brit. Conch.* 214. t. lxvii. f. 2; *Schroët. Fluss.* t. iii. f. 1; *Einl.* iii. 440; *Chem. Conch.* viii. t. lxxxvi. f. 763; *Gmel. Syst. Nat.* 3355; *Pult. Cat. Dorset.* 38. t. xii. f. 2; *Drap. Hist. Nat. des Moll. terrest. et fluv.* 134. t. xii.

f. 1; *Donov. Brit. Shells,* t. lv.; *Mont. Test. Brit.* 179; *M. & R. Trans. Linn. Soc.* viii. 109; *Flem. Edinb. Encycl.* vii. 99; *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 85; *Dill. Desc. Cat.* 317; *Turt. Conch. Dict.* 116.

Mytilus stagnalis, *Sow. Brit. Miscel.* t. xvi.; *Turt. Conch. Dict.* 115.

Testa junior.

Mytilus anatinus, *Lister, Anim. Angl.* t. ii. f. 29; *App.* t. i. f. 2; *Conch.* t. clv. f. 8; *Petiv. Gaz.* t. xciii. f. 8; *Gualt. Test.* t. vii. f. 3; *Linn. Faun. Suec.* 2158; *Syst. Nat.* xii. 1158. no. 258; *D'Argenv. Conch.* t. xxxi. f. 10, med.; *Müll. Verm. Hist.* ii. 207; *Schroët. Fluss.* 160. t. i. f. 1, 2; *Penn. Brit. Zool.* iv. 113. t. lxviii. f. 59; *Da Costa, Brit. Conch.* 221. t. xvii. f. 1; *Pult. Cat. Dorset.* xxviii. t. xiii. f. 6; *Drap. Hist. des Moll. terrest. et fluv.* 134. t. xii. f. 1; *Mont. Test. Brit.* 171; *Flem. Edinb. Encycl.* vii. 99; *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 85; *Dill. Desc. Cat.* 317; *Turt. Conch. Dict.* 116.

Mytilus Avonensis, *Mont. Test. Brit.* 172; *Flem. Edinb. Encycl.* vii. 99; *Turt. Conch. Dict.* 116.

Anodonta intermedia, *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 86.

Mytilus anatinus, *β., M. & R. Trans. Linn. Soc.* viii. 110.

Animal pale saffron; abdomen luteous; the foot, especially at its extremity, deep saffron; the lips saffron inclining more or less to fuscous; the branchiæ lutescent; the orbicular muscle saffron, generally blackish behind; the tracheal fringes luteous; the region of the respiratory or tracheal tubes generally brownish.

The *Mytilus stagnalis* of English writers is merely a gigantic growth of this shell, which in its common adult state has generally been considered to be the *Mytilus cygneus* of Linnæus, who expressly observes, "habitat ad ostia fluviorum;" whereas our shell is never found within the influence of the tide, but resides entirely in fresh water. The younger state of this species is most decidedly the *Mytilus anatinus* of Linnæus, Montague, and most other naturalists; *Mytilus Avonensis* is merely a dwarf variety, which in its young state cannot be distinguished from what is generally denominated *M. anatinus.*

The most common variety occurs in most of the canals and stagnant waters around London, where it is very abundantly found, but rarely exceeds five inches in length; in Norfolk, about Norwich, it is frequently found six inches and a half in length, and three and a half in height. The largest specimens that I have seen measure nearly eight inches in length, three and a half in height, and two and a half in width, and were communicated to me by Sir Joseph Banks, who discovered them in a pond in the front of his house at Spring Grove, that had for many years remained undisturbed.

The second or thick variety was observed by Miss Benett, in a brook near Hillground Hatches, parish of Tisbury in Wiltshire: this is proportionally higher than the first variety; the under margin is very much indented or excavated; the epidermis is black, and the umbones very much corroded; in the young state it cannot be distinguished from the common variety: the largest specimen that I received measured five inches and a half in length, and three and a half in height.

The third variety, *Mytilus Avonensis* of Montague, occurs in the river Mole, near Cobham in Surrey; in the Brent, near Hendon in Middlesex; in a brook at Castle Carey, and in Bishopstrow river, near Warminster, Wiltshire, abundantly; but rarely exceeds two inches and a half in length; in the Avon at Lackham, it acquires the length of three inches and a half; and in the Tay, four inches. This variety is found, with all the intermediate varieties that connect it with the first variety, in the New River, in the Thames, in the Mole; in ponds, near Boreham, Wiltshire; in the Avon above and at Bath; in the Cam; in Norfolk, in a stream, near Erpingham in the latter county; in streams near Newcastle, and round Edinburgh; and in the Wye at Hereford.

All the above-mentioned varieties, which are in the collection I presented to the British Museum at different times, pass into each other imperceptibly, and all perfectly agree with each other in the young state, when the epidermis is of a pale luteous green colour, with very large wing-like processes on their dorsal margin behind their umbones, which generally diminishes as the shells increase in size, and in old specimens is always more or less obsolete.

Not knowing by what appellation I ought to distinguish this species, which has so many names, I at last resolved to give it the name of *Europæa,* as it is the only species yet known to inhabit Europe.

FAMILY XII. PINNADÆ.

Testæ æquivalves elongatæ, posticè attenuatæ, infrà posticè paululum hiantes. *Valva* singula impressionibus tribus muscularibus impressa. *Epidermis* tenuis membranacea aut coriaceo-membranacea. *Ligamenta* duo, interius elongatum aut coriaceo-membranaceum.

Animal bysso è pedis basi enascente.

Genus 63. Pinna.

Shells longitudinal, wedge-shaped, (anteriorly especially), compressed, very much attenuated behind; the umbones terminal; the valves reflexed above, and connected entirely along their whole length; the elastic cardinal ligament not reaching the anterior margin; the hinge toothless; the foot bearing a byssus.

1. Pinna fragilis.

Shells with their valves ribbed longitudinally with obsolete ribs distant from one another, and abruptly attenuated behind; the anterior margin somewhat longer than the exterior one below; the epidermis deep horn-coloured. Length thirteen inches; height anteriorly eight inches.

Pinna fragilis, *Penn. Brit. Zool.* iv. t. lxix. f. 80.
Pinna ingens, *Mont. Test. Brit.* 180; *M. & R. Trans. Linn. Soc.* viii. 112; *Turt. Conch. Dict.* 148.
Pinna lævis, *Donov. Brit. Shells,* t. clii.

Pinna pectinata, *Dill. Desc. Cat.* 326; *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 133, var. β.

This species inhabits the Atlantic, the western coasts of Devon, the southern coasts of Ireland, and the northern coasts of Scotland in deep water. It varies in having the ribs spiny; the processes or spines erect, anteriorly excavated or hollowed; or with having the ribs nearly obsolete, simple, and without spines: it is most common in the Salcombe Estuary. Mr. J. Cranch, when in a trawl-boat near the Eddystone lighthouse in the Plymouth Sound, found the specimen described above, measuring 13 inches long, and 8 in height anteriorly, which contained several muddy pearls. In this species I have frequently seen the *Pinnoteres Veterum*[*], mentioned by Apuleius, and in the fable so beautifully told by Oppian, which is also alluded to by Cicero[†]. Aristotle supposed that they acted as sentinels, which was also believed by Rondeletius and other naturalists.

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2. PINNA ELEGANS.

Shells with their valves slender, thin, transparent, longitudinally ribbed; the ribs narrow, very numerous, placed very near to each other, gradually attenuated behind and spiny; the spines concave; the anterior margin nearly equal; the epidermis pale horn-coloured, behind purple, inclining to blue or greenish. Length seven inches; height anteriorly three and a quarter inches.

Pinna ingens, *Penn. Brit. Zool.* iv. 115.

Pinna pectinata, *Da Costa, Brit. Conch.* 240. t. xvi. f. 3; *Pult. Cat. Dorset.* 39. t. iii. f. 3; *Mont. Test. Brit.* 178; *M. & R. Trans. Linn. Soc.* viii. 113; *Turt. Conch. Dict.* 148.

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[*] Described in my 'Malacostrata Podophthalmata Britannica,' article *Pinnoteres*, where all the British species yet discovered are described and figured.

[†] "Pinna vero (sic enim Græce dicitur) duabus grandis patula conchis, cum parvâ squillâ quasi societatem coit comparandi cibi. Itaque cum pisculi parvi in concham hiantem innataverint, tum admonita a squillâ, pinna morsu comprimit conchas."—*Cicero de Nat. Deor.* lib. ii. s. 48.

Pinna muricata, *Donov. Brit. Shells,* t. x.
Pinna muricata, *Turt. Conch. Dict.* 149?
Var. β. The ribs with their spines reflexed, but not concave; the epidermis flesh-coloured, behind deep flesh-coloured.
Var. δ. The ribs smooth, without spines; the epidermis horn-coloured, flesh-coloured; behind purple, inclining to blue, greenish or deep flesh-coloured.

Inhabits the sea on the coasts of Devon and Cornwall, the southern coasts of Ireland and Wales, and the Dorsetshire coast in very deep water on sandy bottoms.

Genus 64. MODIOLA.

Shells ventricose, nearly transverse, equivalved, regular, slightly winged, anteriorly gradually compressed; the valves connected above as far as the middle of the wing; the umbones nearly terminal and incumbent: the elastic cardinal ligament is somewhat internal, received in a canal of the margin, but not reaching the middle of the wing, one securiform, nearly lateral, muscular impression. The foot very large, elongate-oval.

* *Shell smooth, hinder side winged.*

1. MODIOLA PAPUANA.

Shells with their valves covered with a fuscous or whitish violaceous epidermis; under the epidermis and inside whitish; the anterior side distinctly sinuated; the hinder side with a rounded wing. Length seven inches; height three and a half inches.

Mytilus papuanus, *D'Argenv. Conch.* t. xxii. f. c.
Mytilus modiolus, *Lister, Conch.* t. ccclix. f. 128; *Gualt. Test.* t. xci. f. H.; *Linn. Syst. Nat.* 1158. no. 256; *Knorr. Vergn.* iv. t. xv. f. 3; *Favanne, Conch.* t. l. f. B.; *Penn. Brit. Zool.* iv. 113. t. lxvi. f. 77; *Da Costa, Brit. Conch.* 219. t. xv. f. 5; *Chem. Conch.* viii. 219. t. xv. f. 5; *Pult. Cat. Dorset.* 38; *Brug. Encycl. Méth.* t. ccxix. f. 1; *Donov. Brit. Shells,* t. xxiii.; *Mont. Test. Brit.* 23; *M. & R. Trans.*

Linn. Soc. viii. 108; *Flem. Edinb. Encycl.* vii. 99; *Dill. Desc. Cat.* 211; *Turt. Conch. Dict.* 111.

Var. β. Mytilus umbilicatus, *Penn. Brit. Zool.* iv. 112. t. lxv. f. 76.

Modiola papuana, *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 111.

Mytilus barbatus, *Gualt. Test.* t. xci. f. H.; *Linn. Faun. Suec.* 2157; *Syst. Nat.* xii. 1156. no. 252; *Chem. Conch.* viii. t. lxxxiv. f. 749; *Pult. Cat. Dorset.* 38. t. xii. f. 5, dextra; *Donov. Brit. Shells,* t. lxx.; *Mont. Test. Brit.* 161.

Musculus obscurus pilosus, *Ginan. Conch. Adiat.* ii. 36. t. xxvii. f. 169.

Mytilus curtus, *Penn. Brit. Zool.* iv. 112. t. lxiv. f. 76, A, young.

Mytilus subumbilicatus, *Penn. Brit. Zool.* iv. 112, distorted.

Inhabits the Atlantic, European, Mediterranean and Adriatic seas, generally in very deep water.

Dr. Goodall found this species at Sandersfoot and Weymouth; I have observed it in Salcombe Estuary, Sandgate, Little Hampton, the Hebrides, the Friths of Clyde and Forth, and have received specimens from the Orkneys.

2. MYTILUS GIBBSIANUS.

Shells with their valves covered with a fuscous epidermis; under the epidermis whitish; internally whitish, reddish behind; the anterior side sinuated; the hinder side with a rounded wing. Length two inches and one-eighth; height one inch.

Modiola Gibbsii, *Leach, Zool. Miscel.* ii. 34. t. lxxii. f. 2.

Mytilus modiolus, var. c., *Turt. Conch. Dict.* 112.

This new species was first discovered by Mr. J. Gibbs, formerly collector for Col. Montague, who pointed it out to me as a new species. The epidermis is serrated, and a red spot on the inside of each valve distinguishes it decidedly from the young of *M. papuana*.

** *Shell with longitudinal and oblique grooves.*

3. Modiola Prideauxiana.

Shells with their valves cancellated behind; the anterior side towards the middle broadly sinuated; the hinder side with a rounded wing.

Modiola Prideauxiana, *Leach, Zool. Miscel.* ii. 85.

This beautiful little shell, which does not exceed a quarter of an inch in length, was discovered by my kind and worthy friend and cousin Charles Prideaux, Esq. of Kingsbridge. Several specimens were found by him amongst some sand from Milton in the southern coast of Devon, which I name after him, as a just tribute due to one of the most active and zealous investigators of the marine zoology of Britain.

*** *Shell grooved behind and sometimes before.*

4. Modiola discrepans.

Shells oblong, oval, thin; their valves covered with a pale-green, olive or black epidermis; under the epidermis pink, internally whitish; the valves behind with very few, before with very numerous, narrow, rounded, wrinkled ribs, thence appearing to be cancellated. Length one inch and a half; height seven-eighths of an inch.

Mytilus discrepans, *Da Costa, Brit. Conch.* 221. t. xvii. f. 1; *Mont. Test. Brit.* 169; *Leach, Zool. Miscel.* ii. 36; *Flem. Edinb. Encycl.* vii. 99; *Dill. Desc. Cat.* 319; *Turt. Conch. Dict.* 112.

Mytilus discors, β., *M. & R. Trans. Linn. Soc.* viii. 111.

Inhabits the European and Mediterranean seas on sandy bottoms, adhering to the roots of Fuci and other marine plants, and sometimes to oysters.

This species is common in the Scottish seas, and in the Frith of Forth; it is often found on the Devonshire coasts: Col. Montague only found young specimens, but Mr. Cranch found them in the Plymouth Sound. Young specimens are always luteous or green; when nearly full-grown, green or olive-green:

the old specimens have always a black epidermis, with decorticated umbones.

5. MODIOLA DISCORS.

Shells oval, ventricose; their valves covered with a pale fuscous epidermis; under the epidermis pinkish; on each side longitudinally sulcated; in the middle transversely striated. Length half an inch; height three-eighths of an inch.

Mytilus discors, *Linn. Syst. Nat.* 1159. no. 261; *Born. Mus.* 121, Vign.; *Chem. Naturf.* 10. t. i. f. 8; *Conch.* viii. t. lxxxvi. f. 764–767; *Pult. Cat. Dorset.* 38. t. ii. f. 1; *Donov. Brit. Shells,* t. xxv.; *Mont. Test. Brit.* 169; *M. & R. Trans. Linn. Soc.* viii. 111; *Flem.Edinb. Encycl.* vii. 99; *Dill. Desc. Cat.* 319; *Turt. Conch. Dict.* 112.

Modiola discors, *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 114.

Genus 65. MYTILUS.

Shells longitudinal, equivalve, arched above and somewhat winged, anteriorly gradually compressed, rounded, attenuated; the umbones acute, nearly straight, terminal; the hinge lateral, often toothless; the cardinal ligament marginal, slightly internal; the muscular impression elongated, clubbed, and situated laterally.

The tracheal tubes equal; the foot conic, short, longitudinally impressed; the byssus generally affixed.

1. MYTILUS EDULIS.

Shells oblong, anteriorly curved, compressedly-angulated; posteriorly retuse; towards their inferior margin incurvated; the teeth nearly in a quadruple series; the umbones divaricating. Length three inches; height two and a half inches.

Mytilus edulis, *Rond. Aquat.* ii. 46; *Aldrov. Exsang.* 512; *Lister, Anim. Angl.* t. iv. f. 28; *Conch.* t. ccclxii. f. 200; *Merg. in Act. Paris.* 1711. t. iii. f. 4, 5; *Linn. Faun. Suec.* 2156; *Syst. Nat.* xii. 1157; *Penn. Brit. Zool.* iv. 110. t. lxiii. f. 72; *Gmel. Syst. Nat.* 3353; *Brug. Encycl. Méth.*

t. ccxviii. f. 2; *Pult. Cat. Dorset.* 38. t. xii. f. 5; *Donov. Brit. Shells,* t. cxxviii.; *Mont. Test. Brit.* 159; *M. & R. Trans. Linn. Soc.* viii. 105; *Flem. Edinb. Encycl.* vii. 99; *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 126; *Dill. Desc. Cat.* 309; *Turt. Conch. Dict.* 109.

Varietas pygmæa.

Mytilus incurvatus, *Penn. Brit. Zool.* 110. t. lxiv. f. 54; *Mont. Test. Brit.* 159; *M. & R. Trans. Linn. Soc.* viii. 106. t. iii. f. 7; *Flem. Edinb. Encycl.* 99; *Turt. Conch. Dict.* 109.

The shells with their valves thick; under the epidermis blue, radiated with blue and white; the epidermis very smooth, polished, purple-black or black; in young specimens radiated with blue and white.

This species is very common in the European seas, in estuaries, and between rocks on the shores of the sea, adhering to the rocks by their byssus.

2. Mytilus pellucidus.

Shells oblong, curved and compressedly-angulated anteriorly; behind obtusely rounded; very much incurvated towards their inferior margin; the teeth undulated and arranged in a single series. Length three inches; height one and three-eighths of an inch.

Mytilus pellucidus, *Penn. Brit. Zool.* iv. 112. t. lxiii. f. 75; *Chem. Conch.* viii. t. lxxxiv. f. 755; *Donov. Brit. Shells,* t. lxxxi.; *Mont. Test. Brit.* 160; *M. & R. Trans. Linn. Soc.* viii. 107; *Flem. Edinb. Encycl.* vii. 99; *Dill. Desc. Cat.* 310; *Turt. Conch. Dict.* 110.

Mytilus edulis, β., *Lam. Hist. Nat. des Anim. sans Vert.* vii. part. i. 126.

This species differs from *Mytilus edulis,* in having their valves more compressed, thinner and whitish under the epidermis; in the inferior margin being rather more tumid, and under the umbones gibbosely produced, and in the umbones being more approximating to each other.

The shells of young specimens are pale purple-black, rayed with blue.

This species is very abundant on most of the coasts of Great Britain, most commonly occurring in friths and estuaries, but rarely on the open shores of the sea. A very thick dwarf variety occurs in the crevices of the rocks perforated by the Pholades at Hastings.

I received from my worthy friend, John Stephenson, Esq., Civil Engineer, a very elegant variety of this species, taken from the bottom of a vessel that had for many years been anchored off the Bell-rock, prior to the building of a lighthouse, since erected by this most ingenious engineer: these specimens are rather longer than those found in other parts, which I attribute to their peculiar situation: from having been suspended from the bottom of the vessel, they had doubtless assumed a more regular form than if they had been attached to rocks in an upright position.

A perfect series from this ship are now in that part of my zoological collection which I presented to the British Museum.

FAMILY XIII. ARCADÆ.

Shells elongate; the valves nearly equivalve and nearly equilateral; the hinge linear and straight, with numerous teeth inserted alternately; the ligament internal.

Genus 66. Arca.

Shells transverse, nearly equivalve and nearly equilateral; the umbones distant, separated by an area; the hinge linear straight, its extremities not ribbed; with numerous teeth placed very near together and inserted alternately; the ligament external.

The foot is abruptly clavated, truncated at its extremity.

1. Arca Noæ.

Shells oblong, striated, their extremity emarginated; the umbones incurvated, very remote from one another; the margin gaping, and not in the least denticulated. Length seven-eighths of an inch; height six-eighths of an inch.

Arca Noæ, *Rumph. Mus.* t. xliv. f. P.; *Linn. Syst. Nat.* 1140. no. 169; *Borlase, Cornw.* t. xxviii. f. 15–16; *Donov. Brit. Shells,* x. t. clviii. f. 2; *Mont. Test. Brit.* 139. t. iv. f. 3; *M. & R. Trans. Linn. Soc.* viii. 91; *Schroët. Einl.* iii. 260; *Lam. Hist. Nat. des Anim. sans Vert.* part. i. 37; *Dill. Desc. Cat.* 226; *Turt. Conch. Dict.* 99.

Arca fusca, *Mont. Test. Brit. Supp.* 51; *Turt. Conch. Dict.* 10; *Flem. Edinb. Encycl.* 97.

Arca tortuosa, *Penn. Brit. Zool.* iv. 97. t. lviii. f. 57.

Arca Noæ, *Lister, Conch.* ccccxxxviii. f. 208; *Poli, Test.* ii. t. xiv. f. 1, 2; *Brug. Encycl. Méth.* t. cccv. f. 2, *a*, *b*.

Testa junior.

Arca minima, *Turt. Conch. Dict.* 8.

Var. β. The striæ on the area very close together, and angulately reflexed.

Var. δ. The cardinal area spotted with white, and with less striæ.

2. ARCA PENNANTIANA.

Shells diaphanous, rhomboidal, sculptured with obsolete, decussating striæ; the umbones recurved; the margins crenulated. Length one inch; height three-eighths of an inch.

Arca barbata, *Penn. Brit. Zool.* iv. 98. t. lviii. f. 59; *Dill. Desc. Cat.* 229.

Arca lactea, *Da Costa, Brit. Conch.* 171. t. ii. f. 5; *Donov. Brit. Shells,* t. cxxxv.; *Born. Mus.* 89; *Schroët. Einl.* iii. 266; *Brug. Encycl. Méth. Vers.* 101. t. cccix. f. 1; *Bonan. Recr.* t. ii. f. 79; *Kirch.* t. ii. f. 79; *Gualt. Test.* t. xci. f. F; *Knorr. Mus.* ii. t. ii. f. 7; *Mont. Test. Brit.* 138; *M. & R. Trans. Linn. Soc.* viii. 92; *Flem. Edinb. Encycl.* vii. 92; *Dill. Desc. Cat.* 236.

Arca crinita, *Pult. Cat. Dorset.* 54. t. ii. f. 5.

Arca perforans, *Turt. Conch. Dict.* 9.

Inhabits the British Sea in deep water, found immersed in the holes of rocks very abundantly. Dr. Turton supposes that they perforate the rocks themselves: all those that I have seen were in masses of rock perforated by Pholades; I therefore cannot agree with him in this opinion.

This species is most decidedly distinct from the *Arca lactea* of Linnæus: of this I am well assured, having compared it with the *A. lactea* in the Museum of my worthy friend Le Chevalier De Lamarck, taken in the Mediterranean, where Linnæus says that it inhabits.

FAMILY XIV. PECTUNCULIDÆ.

Shells orbicular, equivalve, nearly equivalve shut; the hinge arched, with numerous oblique teeth, the middle ones obsolete; the cardinal ligament external.

Genus 67. Pectunculus.

Glycymeris, *Da Costa.*
Pectunculus, *Lamarck, Cuvier, Say,* &c.
Axinea, *Poli.*

The shells orbicular, sublenticular, equivalved, nearly equilateral and completely shut; the hinge arched, with numerous oblique teeth placed in an alternating series; the middle one obsolete; the ligament external.

The foot is very large, its inferior margin doubled.

1. Pectunculus Glycymeris.

Shells with their valves orbicular, transverse, nearly equilateral, longitudinally sulcated and striated with divaricating striæ; the older valve turgid and very thick, painted with obscure concentric zones. Length three inches and a half; height three inches and a quarter.

Arca Glycymeris, *Knorr. Vergn.* vi. t. xiv. f. 3; *Linn. Syst.*

Nat. xii. 1143. no. 181 ; *Chem. Conch.* vii. t. lvii. f. 564 ; *M. & R. Trans. Linn. Soc.* viii. 93 ; *Mont. Test. Brit.* 136 ; *Lam. Hist. Nat. des Anim. sans Vert.* vii. part. i. 49 ; *Flem. Edinb. Encycl.* vii. 77 ; *Dill. Desc. Cat.* 227 ; *Turt. Conch. Dict.* 7.

Var. β. Arca Glycymeris, *Penn. Brit. Zool.* iv. 98. t. lviii. f. 58 ; *Lam. Hist. Nat. des Anim. sans Vert.* vii. part. i. 49.

Var. β. The valves nearly equilateral, white-fulvous, zoned with fulvous.

This species is very common in the Atlantic, European and Mediterranean Seas in deep water on sandy bottoms.

It is common on the south and western coasts of Cornwall, Devon and Dorset ; the southern coasts of Wales and Ireland ; in the Hebrides, Salt-lochs and Friths in Scotland.

2. PECTUNCULUS PILOSUS.

Shells with their valves orbicularly oval, tumid, with decussating striæ ; the umbones oblique ; the epidermis fuscous and hairy. Length one and seven-eighths of an inch ; height one and seven-eighths and one-half of an inch.

Arca pilosa, *Lister, Conch.* t. ccxl. f. 77 ; *Poli, Test.* ii. t. xxvi. f. 1–4 ; *Lam. Hist. Nat. des Anim. sans Vert.* vii. part. i. 49, var. *a*.

Var. β. Arca pilosa, *Lister, Conch.* t. ccxlvii. f. 82 ; *Petiv. Gaz.* t. lxxix. f. 7 ; *Born. Mus.* t. vi. f. *a, b.* ; *Linn. Syst. Nat.* xii. 1143. no. 182 ; *Poli, Test.* ii. t. xxv. f. 19 ; *Mont. Test. Brit.* 136 ; *M. & R. Trans. Linn. Soc.* viii. 94 ; *Flem. Edinb. Encycl.* vii. 77 ; *Dill. Desc. Cat.* 227 ; *Lam. Hist. Nat. des Anim. sans Vert.* vii. part. i. 50, var. β. ; *Turt. Conch. Dict.* 6.

Arca Glycymeris, *Donov. Brit. Shells,* t. xxxvii.

Var. *a*. Shells with their valves gibbous, clouded with fuscous and fulvous ; the upper margin irregular and produced.

Var. β. Shells with their valves suborbicular, tumid, whitish, painted with little flames ; the upper margin rounded and regular.

This species inhabits the Atlantic, European, Mediterranean and Adriatic seas in deep water on sandy bottoms.

It is not uncommon on the western coasts of Cornwall, Devonshire and Dorsetshire, and on the southern coasts of Ireland; at Yawl, Cork Harbour; Bantry Bay and Dingle Bay; in Scotland, Bute, Arran, and the Hebrides; Sandgate, Kent; and at Hastings, Sussex.

ORDER II. MONOMYA.

FAMILY I. AVICULIDÆ.

Shells equivalve, their hinge straight.

The animal with its foot elongated, somewhat conical, with a byssus at its base.

Genus 68. Avicula.

Avicula, *D'Argenville, Lamarck, Cuvier,* &c.

Testæ inæquivalves, fragiles, submuticæ, aspectu superiore transverso recto extremitatibus productis; anticâ caudiformi. *Valva* sinistra emarginata. *Cardo* linearis unidentatus; dente in utrâque valvâ infra umbones. *Ligamenti* area marginalis angusta canaliculata, bysso non intersepta.

1. Avicula Britannica.

Shells very smooth, shining chestnut, spotted with fuscous, and obliquely streaked with white lines; the anterior lobe wrinkled, the hinder one semicircularly striolated; internally shining, silvery white. Length one inch; height half of an inch.

Mytilus Hirundo, *Linn. Lud. Ulr.* 549. no. 140; *Syst. Nat.* 1159; *Gmel. Syst. Nat.* 3357; *Dill. Desc. Cat.* 320; *Turt. Conch. Dict.* 108.

Inhabits the deep sea on the coasts of Ireland and Devon, where it is very rare; but very common in the Mediterranean and Adriatic seas.

FAMILY II. PECTINIDÆ.

Shells most often nearly equivalve; the hinge toothless; the ligament internal, situated in an excavation more or less triangular; the upper margins of both valves alated (winged) before and behind; the epidermis very thin.

The mantle is separate, not at all joined; its margin fringed with a double row of cirri, ornamented with round emerald-coloured spots, resembling eyes; no trachea; the lips furnished with tentacles, but not lobated; the foot is oval, truncated, and bearing a byssus at its extremity.

All the Pectinidæ inhabit the sea; their shells are most generally slightly inequivalve, which arises from the superior convexity of one of the valves, or from the notch in the right valve, for the exit of the byssus. The hinge has no teeth; the ligament is internal, being placed on an excavation more or less triangular: their upper margin has an auricular dilatation before and behind the umbones, which are nearly central.

Genus 69. Pecten.

Shells regular, inequivalve; the superior margin straight, dilated before and behind into a wing-like process; the umbones contiguous and central; the hinge toothless; the cardinal excavation (or fovea) trigonal, situated far inwardly; receives the cardinal ligament, which is concealed; the right valve at the exit of the byssus notched.

This genus contains a vast number of species, and is divided into several sections or subdivisions, of which I shall only enumerate those peculiar to the British ones, that the characters of the sections may not be confounded or mistaken for those belonging to those of the species.

In the first two sections may be observed, at the base of the auricular processes, before and behind in each valve, an obtuse tubercular process, which cannot be observed in any of the other sections.

I have never seen a British specimen of *Pecten Jacobæus*: Montagu's specimen is marked Mediterranean, I have therefore omitted it in this work.

Shells longer than high; sculptured with thick divaricating ribs; the left valve flattish; the right valve convex, with a slender simple notch; the auricles equal.

1. PECTEN MAXIMUS.

Shells with concentric, elevated striolæ, with divaricating ribs longitudinally striated; the epidermis of the right valve yellowish-white, red beneath the umbones; the left valve white. Length six and a half inches; height five and a half inches.

Ostrea maxima, *Bonann. Recr.* t. ii. f. 8; *Lister, Anim. Angl.* t. v. f. 29; *Conch.* t. clxiii. f. 1; *Petiv. Mus.* t. lxxxvi. no. 829; *Linn. Faun. Suec.* 2148; *Syst. Nat.* 1144. no. 185; *Regenf. Conch.* i. t. ii. f. 19; t. vii. f. 3; *Chem. Conch.* vii. t. lx. f. 585; *Gmel. Syst. Nat.* 3315; *Brug. Encycl. Méth.* t. ccix. f. 1. *a, b.*; *Donov. Brit. Shells,* t. xlix.; *M. & R. Trans. Linn. Soc.* viii. 96; *Dill. Desc. Cat.* 247; *Turt. Conch. Dict.* 128.

Pecten maximus, *Penn. Brit. Zool.* iv. 99. t. lix. f. 61; *Mont. Test. Brit.* 143; *Flem. Edinb. Encycl.* vii. 97; *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 163.

Var. β. The left valve yellowish-white, painted with pale fuscous, or pale saffron-fuscous concentric bands.

Inhabits the European ocean in deep water; and occurs very frequently in estuaries or the mouths of rivers.

The general colour of this species is white or brick-red, simple or variegated; sometimes mottled with brown or purple; inside white, generally margined with chocolate or purplish-brown.

The animal is dirty-white, the region of the liver bluish-black; the branchiæ testaceous-saffron.

The variety is common in the Friths of Forth and Clyde; the Provost of Eton and General Bingham inform me that it is common at Weymouth.

This is the common *Scallop* of our markets, which is so much esteemed as a delicate article of food.

Shells longer than high, sculptured with thick divaricating ribs; the right valve rather flatter, with a deep notch, ciliated with minute spines; the auricles equal.

2. PECTEN OPERCULARIS.

Shells roundish, with concentric, elevated, flat, undulated striæ, or produced into tubercles; with eighteen or twenty rounded ribs longitudinally grooved. Length and height three inches and a half.

Ostrea opercularis, *Lister, Anim. Angl.* t. v. f. 30; *Conch.* t. cix. f. 27, t. cxci. f. 28; *Petiv. Gaz.* t. xciv. f. 1; *Linn. Syst. Nat.* 1147. no. 202; *Born. Mus.* 106; *Gmel. Syst. Nat.* 3325; *Da Costa, Brit. Conch.* 144. t. ix. f. 1–5; *Favanne, Conch.* t. liv. f. L. 2; *Chem. Conch.* vii. t. lxvii. f. 646; *Schroët. Einl.* iii. 317. t. ix. f. 3; *Pult. Cat. Dorset.* 36. t. ix. f. 1–5; *Brug. Encycl. Méth.* t. ccxiii. f. 3; *Dill. Desc. Cat.* 265; *Turt. Conch. Dict.* 126.

Ostrea dubia, *Gmel. Syst. Nat.* 3319.

Ostrea elegans, *Gmel. Syst. Nat.* 3319.

Ostrea versicolor, *Gmel. Syst. Nat.* 3319.

Pecten opercularis, *Mont. Test. Brit.* 145; *Flem. Edinb. Encycl.* vii. 97; *Lam. Hist. Nat. des Anim. sans Vert.* vii. part. i. 172.

Var. α. Pecten luteus, *Da Costa, Brit. Conch.* 144. t. ix. f. 5.

Var. β. Pecten subrufus, *Lister, Anim. Angl.* t. cxc. f. 27; *Penn. Brit. Zool.* iv. 100. t. lx. f. 62.

Var. δ. Pecten subrufus, *Donov. Brit. Shells,* t. xii.

Var. ζ. Pecten lineatus, *Mont. Test. Brit.* 147; *Flem. Edinb. Encycl.* vii. 97; *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 172; *Dill. Desc. Cat.* 264.

Ostrea radiata, *Gmel. Syst. Nat.* 3320.

Var. α. Valves with a luteous epidermis.
Var. β. Valves with white purplish epidermis.
Var. δ. Valves with red epidermis.

Var. ε. Valves with the epidermis white, elegantly ornamented with rose-coloured spots.

Var. ζ. The right valve with the epidermis of one colour, banded with yellow; the left valve with its ribs streaked with blood-red.

This species is extremely common in the European seas, in deep water or sandy bottoms.

The general colour of the shells of this species is pure white, whitish, saffron, orange, or of various tints of red or rose, with the ribs of the left valve marked with a red central line; the right valve being plain white or radiated with yellow, marbled, spotted, concentrically banded or radiated with various tints of red, pure white or whitish: the inside is white, spotted with yellow or brownish-grey.

This species occurs of every possible variation of tints of colour, caused by a mingling of those above-mentioned colours; I have only distinguished as varieties such as are prominent and common.

I have stated that it is only found in very deep water on sandy bottoms: I state this from the observations made by my friends C. Prideaux, Esq., Mr. J. Cranch and myself.

It is an article of food on the western coasts of England.

Shells higher than broad, with slender divaricating ribs; the right valve flattest, with its notch, ciliated with spines: the auricles nearly equal.

3. PECTEN VARIUS.

Shells high, somewhat rounded, both valves with twenty-six or thirty somewhat compressed ribs, having rough scales hollow beneath; the interstices sculptured with divaricating striæ; the epidermis purplish, pale fuscous, brown, ferrugineous, red, orange, yellow or white. Length and height two and a half inches.

Ostrea varia, *Lister, Conch.* t. clxxx. f. 17, t. clxxxi. f. 18, t. clxxxix. f. 23; *Linn. Syst. Nat.* 1146. no. 199; *Gmel.*

Syst. Nat. 3324; *Pult. Cat. Dorset.* 30. t. x. f. 1–9; *M. & R. Trans. Linn. Soc.* viii. 97; *Dill. Desc. Cat.* 260; *Turt. Conch. Dict.* 130.

Pecten varius, *Penn. Brit. Zool.* iv. 401. t. lxi. f. 64; *Brug. Encycl. Méthod.* t. ccxiii. f. 5; *Mont. Test. Brit.* 146; *Flem. Edinb. Encycl.* vii. 97; *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 175.

Pecten Monotis, *Da Costa, Brit. Conch.* 151. t. x. f. 1–9.

This species is not uncommon in the deep European seas; it is found on most of our coasts, and is very abundant in the estuaries of Devon and Cornwall.

The epidermis is generally simply coloured, as mentioned in the specific character; but it is more or less subject to great variation, from the mixing of some of these colours.

4. PECTEN SINUOSUS.

Shells highly oval, unequally bent; with very numerous, elevated, very narrow, rounded, rough ribs, armed with inflexed spines; the interstices narrow and simple; the epidermis pink, pale fuscous, often marbled with white. Length one inch and a half; height two inches.

Ostrea sinuosa, *Lister, Anim. Angl.* t. v. f. 31; *Conch.* t. clxxii. f. 9; *Petiv. Gaz.* t. lxiv. f. 2; *Gmel. Syst. Nat.* 3319; *M. & R. Trans. Linn. Soc.* viii. 99; *Dill. Desc. Cat.* 260; *Turt. Conch. Dict.* 130.

Ostrea distorta, *Pult. Cat. Dorset.* 36. t. x. f. 3–6.

Pecten Pusio, *Penn. Brit. Zool.* iv. 101. t. lxi. f. 65; *Donov. Brit. Shells,* t. xxxiv.

Pecten distortus, *Mont. Test. Brit.* i. 148; *Flem. Edinb. Encycl.* vii. 98.

Pecten sinuosus, *Lam. Hist. Nat. des Anim. sans Vert.* vii. part. i. 175.

Pecten distortus, *Da Costa, Brit. Conch.* 148. t. x. f. 3–6.

This species is very common in the British seas, and on the southern coasts of France, being found in fissures in rocks or in the sand of the sea.

This species is generally very much distorted, which arises from its residing in fissures of rocks, into which it enters at a young age, and there remains until full-grown: it is sometimes found in sand; their form is then much more regular.

It is not uncommon on the western coasts, at Milton Sands, Dawlish, Salcombe, Torbay, and has been found in the Plymouth Sound, where it is very abundant, in *Eschara foliacea,* by Mr. J. Cranch.

Shells higher than long; the left valve sculptured with obsolete divaricating ribs; the right valve rather flatter, its notch ciliated with small spines; the auricles unequal.

5. PECTEN OBSOLETUS.

Shells sculptured with concentric and divaricating striæ, hence reticulated; their angles granulated; the anterior auricle sculptured with horizontal rays; the interstices radiated. The epidermis whitish, grey, pink, pale violet, purplish-brown; red or reddish, simple or radiated; variegated or punctulated with purple brown, pink, violet or pale red. Length seven-eighths of an inch; height one inch.

Pecten obsoletus, *Penn. Brit. Zool.* iv. 102. t. lxi. f. 66; *Donov. Brit. Shells,* t. i. f. 2; *Mont. Test. Brit.* 146. *Suppl.* 57; *Flem. Edinb. Encycl.* vii. 98.

Pecten parvus, *Da Costa, Brit. Conch.* 153.

Ostrea obsoleta, *M. & R. Trans. Linn. Soc.* viii. 100; *Turt. Conch. Dict.* 133.

Pecten lævis, *Penn. Brit. Zool.* iv. 67; *Mont. Test. Brit.* 150. t. iv. f. 4.

Ostrea lævis, *M. & R. Trans. Linn. Soc.* viii. 100. t. iii. f. 5? *Turt. Conch. Dict.* 131?

Ostrea similis, *Laskey, Trans. Wern. Soc.* i. t. viii. f. 8.

This species occurs but rarely in the English seas, but is not uncommon in the Scotch seas, inhabiting deep water; it is occasionally taken by the dredge, or is thrown on shore by storms; but it is most frequently found plentifully in the stomach of the cod, *Gadus Morrhua,* taken on the northern coasts.

I have carefully compared Montagu's specimen of his *Pecten obsoletus* and *lævis,* both of which he had placed together in one tray, each with its own ticket; and can discover no other distinctions than those of size and colour.

Genus 70. LIMA.

Lima, *Bruguière, Lamarck, Cuvier.*
Ctenoïdes, *Klein.*

Shells nearly equivalve, auriculated between the valves on the side slightly gaping; the umbones divaricating; the internal linings or walls bending downwards towards their outsides; the hinge toothless; the cardinal foveola or excavation which receives the ligament is partly external.

The margins of the mantle are not fringed.

1. LIMA LOSCOMBEA.

Shells somewhat pellucid, with concentric elevated striolæ and vertical striæ; the lower interstices elevated and forming ribs; the epidermis white. Height half an inch.

This new species was discovered by —— Loscombe, Esq. in deep water, in Torbay on the coast of Devon, to whom I am indebted for the specimens from which this description was taken. In his collection is preserved a specimen of the animal in spirits of wine.

2. LIMA RETICULATA.

Shells vertically ribbed; the interstices with elevated lines and concentric elevated striæ, forming a network; the epidermis white.

Pecten fragilis, *Mont. Test. Brit. Supp.* 62; *Flem. Edinb. Encycl.* vii. 98.
Ostrea fragilis, *Turt. Conch. Dict.* 62.

This very rare species is sometimes found on the southern and western coasts of Devon: I since found a single valve by dredging in the Frith of Forth, and observed a single specimen in the collection of Dr. Fleming, which I believe was found in Shetland.

I am obliged to change the name *fragilis,* as it has been before employed in this genus.

3. Lima tenuis.

Shells smooth, pellucid, concentrically striolated, and with very fine vertical elevated lines, placed far apart from one another; the epidermis whitish.

I obtained two single valves of this species, which were dredged up at Newhaven, in the Frith of Forth.

4. Lima unicostata.

Shells pellucid, with vertically elevated lines; one of the middle lines is elevated and forms a rib; both valves immediately under the rib are channeled; the epidermis white.

Pecten subauriculatus, *Mont. Test. Brit. Supp.* 63; *Flem. Edinb. Encycl.* vii. 98.

Ostrea subauriculata, *Turt. Conch. Dict.* 131.

This species occurs, but very rarely, in deep water in sandy bottoms.

Had I not seen the specimen in Montagu's collection ticketed by himself, it would have been impossible for me to have made it out either from his figure or description.

Mr. J. Cranch has occasionally procured it for me from the trawlers on the coast of Devon, in very good condition; and Dr. Goodall, the Provost of Eton, has detected young specimens in sand, from Padstow Harbour in Cornwall.

FAMILY III. OSTREADÆ.

Shells inequivalve; the right valve flattened; both valves entire; the hinge straight; the ligament nearly internal.

Genus 71. OSTREA.

Ostrea, *Pliny, Linnæus, Lamarck, Cuvier,* &c.
Perolis, *Poli.*

Shells inequivalve, irregular; the umbones externally disjoined, rather divaricating in the adult state, very unequal; the right valve smaller and flattened, gradually increasing posteriorly, during the life of the animal; the hinge toothless; the ligament half internal affixed to a fossula or little excavation of the valves: the fossula of the right valve increases with age, and sometimes extends equally with the left umbo itself.

The lobes of the mantle are only united above the head; their margins with a double fringe.

1. OSTREA EDULIS.

Shells with their valves ovately-rounded, the upper margin somewhat attenuated behind, with testaceous, concentric, undulated membranes; the right valve flattened; the epidermis dirty-fuscous.

Ostrea edulis, *Rondel. Aquat.* ii. 37; *Lister, Anim. Angl.* t. iv. f. 26; *Conch.* ii. t. lxviii. f. 30; t. cxciv. f. 31; *Linn. Faun. Suec.* 2149; *Syst. Nat.* xii. 1148. no. 211; *Sibbald, Mus. Balf.* 161; *Wallace, Ork.* 42; *Leigh, Lanc.* 134; *Smith, Cork,* 318; *Borlase, Cornw.* 274; *Wallis, Northum.* 390; *Dale, Harwich,* 383; *Gualt. Test.* t. cii. f. A, B.; *Knorr. Vergn.* iii. t. xxiv. f. 2. t. xxv. f. 2; *Guann. Adriat.* ii. t. xviii. f. 137; *Baxter, Op. subsec.* ii. 62. t. viii. f. 1, 2, 8, 9; *Penn. Brit. Zool.* iv. 102. t. lxii. f. 70, inf.; *Da Costa, Brit. Conch.* 154. t. ii. f. 6; *Chem. Conch.* viii. 74. t. lxxiv. f. 682; *Gmel. Syst. Nat.* 3334; *Schroët. Einl.* iii. 325; *Brug. Encycl. Méth.* t. clxxxiv. f. 7, 8; *Pult. Cat. Dorset.* 36. t. ii. f. 6; *Mont. Test. Brit.* 151; *M. & R. Trans. Linn. Soc.* viii. 102; *Flem. Edinb. Encycl.* vii. 98; *Dill. Desc. Cat.* 280; *Turt. Conch. Dict.* 133.

Varietas pygmæa. Ostrea parasitica, *Turt. Conch. Dict.* 134.

This species is extremely common in the European seas, in estuaries, friths, and the mouths of rivers.

It is subject to great varieties in form, thickness and general structure; it is as much esteemed by the moderns as by the ancients: the Romans were extremely fond of them, and had *layers* or *stews* for oysters, as we have at present. Sergius Orata, who lived at the time of Lucius Crassus, is supposed to have been the first inventor: he did not make them for indulging his appetite, but through avarice, and made great profits from them. Orata got great credit for his Lucrine oysters; for, as Pliny observes, the British were not then known.

The ancients ate them raw, and sometimes roasted; they had also a custom of stewing with mallows and docks, or with fish; and they were esteemed as very nutritious diet*.

Britain has been celebrated for its oysters from the time of Juvenal†, and still preserves its superiority over other countries: they are found in natural beds on our coasts: they are taken by dredging for them, and are become an article of commerce, both raw and pickled.

Stews or layers of oysters are formed in places which Nature never allotted for them: those near Colchester have been long esteemed the best; but there are, however, now many other places, that at least rival those from Colchester, near the mouth of the Thames: natural beds at the mouth of the Plym river, and the Tamar near Saltash, and on the coasts between Guernsey and Jersey and France, are much better than those from the above-mentioned places: they also occur in the Frith of Forth, near Leith, abundantly, and excellent in quality, and are sold for 10*d.* a hundred.

I will now give an extract from Bishop Sprat's History of the Royal Society:—

"In the month of May cast up their spawn (which the dredgers call their spats); it is like the drop of a candle, and as big as a halfpenny.

"The *spat* cleaves to stones, old oyster-shells, pieces of wood and such-like things at the bottom of the sea, which they term *cultch*.

"'T is probably conjectured that the spat in twenty-four hours begins to have a shell: in the month of May, the dredgers (by law of the Court of Admiralty) have liberty to take all manner of oysters of what size soever: when they have taken them, they gently raise the small brood from the *cultch*, and then they throw the *cultch* in again to preserve the ground for the future, unless they be so newly spat, that they cannot be safely severed from the cultch: in that case, they are permitted to take the stone, shell, &c., that the *spat* is upon, one shell having very often twenty *spats*.

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* Plin. Hist. Nat. lib. ix. c. 54.

† Sat. iv. 140.

"After the month of May, it is felony to carry away the *cultch*, and punishable to take any other oysters, unless it be those of a size (that is to say) about the bigness of a half-crown piece; or when, the two shells being shut, a fair shilling will rattle between them.

"The places where these oysters are chiefly catcht, are the Pont-burnham, Maldern and Colne waters: the latter, taking its name from the river Colne, which passeth by Colne-Chester, gives the name to that town, and runs into a creek of the sea, at a place called the Hithe, being the suburbs of the town.

"This brood and other oysters, they carry to the creeks of the sea, at Brickelsea, Mersey, Langno, Fingrego, Wivenho, Tolesbury and Saltcoase, and there throw them into the Channel, which they call their beds or layers, where they grow and fatten: in two or three years the smallest brood will be of the size aforesaid.

"Those oysters that they would have green*, they put into pits three feet deep in the salt-marshes, where they only overflow at spring-tides, to which they have their sluices, and let out the salt-water, until it is about a foot and a half deep: these pits, from the quality of the soil, cooperating with the heat of the sun, will become green†, and communicate their colour to the oysters that are put into them for four or five days; though they commonly let them continue there six weeks or two months, in which time they will be dark green.

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* It has been supposed that the fine green colour is owing to the acetate or sulphate of iron contained in water in those artificial beds in which they are kept: this is, however, an erroneous idea, as both these are more or less destructive to animal life in general, and especially to these soft animals.

† This may possibly arise from a species of marine conferva, very commonly found in salt marshes, though generally modified by the admixture of the fresh water, in its appearance and nature.

"To prove that the sun operates in the greening of the oysters, Tolesbury pits will green only in summer; but then the earth has the greater power. Brickel sea-pits green both winter and summer; and for a further proof, a pit within a foot of the greening-pit will not green; and those that did green very well, will in time lose their quality.

"The oysters, when the tide comes in, lie with their hollow shell downwards; and when it goes out, they turn on the other side: they remove not from their places unless in cold weather, to cover themselves in the Ouse.

"The reason of the scarcity of oysters, and consequently of their dearness, is, because they are of late years bought up by the Dutch.

"There are great penalties, by the Court of Admiralty, laid upon those who fish out of those grounds which the Court appoints, or that destroy the *cultch*, or that take oysters that are not of size, or throw upon the shore a fish which they term *five-finger*[*], resembling a spur-rowel; because that fish gets into the oysters, when they gape, and sucks them out[†].

"The reason why such a penalty is set up on any that shall destroy the *cultch*, is, because if they find that any be taken away, the Ouse will increase, and the muscles and cockles will breed there, and destroy the oysters, they having not whereon to stick their *spat*.

"The oysters are sick after they have spat; but in June and July they begin to mend, and in August they are perfectly well: the male oyster is black-sick, having a substance in the fin; the female *white-sick*, as they term it, having a milky substance in the fin: they are salt in the pits, salter in the layers, but saltest in the sea."

Some other observations contained in a work, entitled 'The History of Rochester,' 12mo., published in 1776, on this subject, may not be uninteresting to my readers.

"Great part of the inhabitants of the Strood are supported by these fisheries, of which the oyster is the most considerable: this is conducted by a company of free dredgers, established by prescription, but subject to the authority and government of the mayor and citizens of Rochester. In 1729 an Act of Parliament was obtained for the better management of this fishery, and for confirming the jurisdiction of the said mayor and citizens, and the free dredgers. The mayor holds a Court of Admiralty every year, to make such regulations as shall be necessary for the well-conducting of this branch of fishery. Seven years' apprenticeship entitles a person to the freedom of this company. All persons catching oysters, not members of the fishery, are liable to a penalty. The company frequently buy brood or spat from other parts, which they lay in this river, where they soon grow to maturity. Great quantities of these oysters are sent to London, to Holland, Westphalia and the adjacent countries.

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[*] Asterias glacialis, the common star-fish or sea-star.

[†] This is an erroneous idea; it has no such power.

ORDER III. TRIMYA.

Shells with three adductor muscles and two small adductor tendons buried in the anterior adductor muscle. The foot wanting.

FAMILY ANOMIADÆ.

Shells with unequal, irregular valves; the right valve smaller, emarginated (notched) or perforated under the umbones.

Genus 72. Anomia.

Shells with unequal, irregular valves; the right valve smallest, generally flat, perforated or emarginated under the umbones; the *operculum* somewhat bony, small, elliptic, adhering to marine bodies; the left valve perfect, entire, concave, a little larger.

1. Anomia Ephippium. Tab. V.

Shells with their valves flattish, suborbicular, with rugose undulating folds; the foramen oval; the epidermis whitish or pale fuscous. Length and height from four and a half to five inches.

Anomia Ephippium, *Lister, Conch.* t. cciv. f. 38; *D'Argenv. Conch.* t. xix. f. C.; *Linn. Syst. Nat.* xii. 1150. no. ; *Penn. Brit. Zool.* iv. 109. t. lxii.; *Chem. Conch.* viii. t. lxxvi. f. 694, 695; *Brug. Edinb. Encycl.* t. clxx. f. 6, 7; *Poli, Test.* ii. 186. t. xxx. f. 9–11; *Pult. Cat. Dorset.* 37. t. ii. f. 3; *Donov. Brit. Shells,* t. xxvi.; *Mont. Test. Brit.* 155; *M. & R. Trans. Linn. Soc.* viii. 102; *Flem. Edinb. Encycl.* vii. 99; *Dill. Desc. Cat.* 286; *Turt. Conch. Dict.* 2.

Anomia Tunica Cepæ, *Da Costa, Brit. Conch.* 165. t. ii. f. 3.

This species is found abundantly in the Atlantic, European, Mediterranean and Adriatic seas; most commonly found in very deep water, adhering to stones, rocks and shells.

2. Anomia Squammula.

Shells with their valves suborbicular, flat, flexuous, subpellucid; the right valve with a round foramen, its inferior aspect with a fissure; the epidermis white.

Anomia Squammula, *Linn. Faun. Suec.* 2151; *Syst. Nat.* xii. 1151. no. 221; *Penn. Brit. Zool.* iv. 109; *Gmel. Syst. Nat.* 3340; *Da Costa, Brit. Conch.* 167; *Walker, Test. Min. Rar.* f. 80; *Pult. Cat. Dorset.* 37. t. xiii. f. 4; *Poli, Test.* ii. 188. t. xxx. f. 18; *Mont. Test. Brit.* 156, 561; *Brug. Encycl. Vers.* 70; *M. & R. Trans. Linn. Soc.* viii. 103; *Flem. Edinb. Encycl.* vii. 99; *Turt. Conch. Dict.* 3.

Anomia Ephippium junior, *Dill. Desc. Cat.* 286.

3. Anomia aculeata.

Shells with their valves rather rounded, thin, transparent and aculeated; the middle of the left valve smooth and recurved; the epidermis pale fuscous or yellowish. Length and height half an inch.

Anomia aculeata, *Gualt. Test.* t. lxvii. f. 702; *Müll. Zool. Dan. Prod.* 3005; *Chem. Conch.* viii. t. lxxvii. f. 702; *Mont. Test. Brit.* 155. t. iv. f. 5; *M. & R. Trans. Linn. Soc.* viii. 103; *Flem. Edinb. Encycl.* vii. 99; *Dill. Desc. Cat.* 288.

This species is found on the coasts of Devon and Cornwall, and on the southern coasts of Ireland, adhering to the roots of *Fucus digitatus* and other marine plants.

4. Anomia squamosa.

Shells with both their valves squamose, the scales arranged concentrically in regular series, the middle of the left valve reflexed; the epidermis white. Length and height three-eighths of an inch.

Anomia aculeata, *Turt. Conch. Dict.* 4?

Inhabits the British seas, adhering to the roots of marine plants.

5. Anomia undulata.

Shells with the margins of their valves wrinkled; the left valve sculptured with arched concentric striæ, and with other divaricating undulated striæ; the right valve smooth, with a wide oval foramen; the epidermis whitish, pale fuscous, rubescent or purplish. Length an inch and a half; height one inch.

Anomia undulata, *Lister, Anim. Angl.* t. iv. f. 27; *Conch.* ccii. f. 36; *Müll. Zool. Dan. Prodr.* 3003; *Chem. Conch.* viii. t. lxxvii. f. 699; *Brug. Encycl.* t. clxxxiv. f. 5, 6; *Mont. Test. Brit.* 153, 157, t. iv. f. 6, 580; *Flem. Edinb. Encycl.* vii. 99; *Dill. Desc. Cat.* 289; *Turt. Conch. Dict.* 4.

Ostrea striata, *Da Costa, Brit. Conch.* 102. t. ii. f. 4; *Pult. Cat. Dorset.* 36. t. ii. f. 4; *Donov. Brit. Shells,* t. xlv.

Inhabits the southern coasts of Devon, Cornwall and Ireland, adhering to rocks.

6. Anomia Lens.

Shells with their valves elliptic; the right valve slightly convex, the foramen small and oval; the left valve with an acute umbo. Length five-eighths of an inch; height three-eighths of an inch.

Anomia Lens, *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 228.

One specimen of this species was found by Mr. Varley adhering to chalk-rocks near Dover; Lamarck says it inhabits the European ocean.

7. ANOMIA CYMBIFORMIS.

Shells with their valves oblong, rough, concentrically striolated, the umbones recurved; the foramen oval. Length half an inch; height three-eighths of an inch.

Anomia cymbiformis, *Schroët. Einl. in Conch.* iii. t. ix. f. 13; *M. & R. Trans. Linn. Soc.* viii. 104; *Flem. Edinb. Encycl.* vii. 99.

Anomia cylindrica, *Dill. Desc. Cat.* 291; *Turt. Conch. Dict.* 6.

Inhabits the sea on the coasts of Devon, adhering to marine plants and to Sertulariæ.

8. ANOMIA PELLUCIDA.

Shells with their valves rounded, very thin, pellucid, wrinkled, the umbones very small and margined; the left valve very convex; the epidermis amber. Length one inch; height five-eighths of an inch.

Anomia pellucida, *Brown, Trans. Wern. Soc.* ii. 514.

Inhabits the British and Atlantic seas.

9. ANOMIA CEPA.

Shells with their valves suborbicular, pellucid, sculptured with very obtuse, obsolete, divaricating ribs; the epidermis reddish violet. Length one inch; height a quarter of an inch.

Anomia Cepa, *Linn. Syst. Nat.* 1151; *Knorr, Vergn.* t. ix. f. 5; *Gmel. Syst. Nat.* 3340; *Schroët. Einl.* iii. 384; *Poli, Test.* ii. 182. t. xxx. f. 1–8; *Murr. Fund. Test.* t. iii. f. 13; *Chem. Conch.* viii. t. lxxvii. f. 694, 695; *Brug. Encycl.*

Méthod. Vers. t. clxxi. f. 1, 2; *Lam. Hist. Nat. des Anim. sans Vert.* vi. part. i. 227; *Dill. Desc. Cat.* 287; *Turt. Conch. Dict.* 3.

Inhabits the Atlantic, European, English, Scotch and Irish seas.

10. ANOMIA ELECTRICA.

Shells with their valves rounded, rather smooth, pellucid; the left valve convexly-gibbose; the epidermis yellow. Length an inch and a half; height five-eighths of an inch.

Anomia electrica, *Linn. Syst. Nat.* 1151; *Born. Mus.* 118; *Rumph. Mus.* t. xlvii. f. L.; *Knorr. Vergn.* v. t. xxv. f. 691; *Chem. Conch.* 79. t. lxxvi. f. 691; *Schroët. Einl.* iii. 385; *Gmel. Syst. Nat.* 3341; *Brug. Encycl. Vers.* 71; *Lam. Hist. des Anim. sans Vert.* vi. part. i. 227; *Dill. Desc. Cat.* 288; *Turt. Conch. Dict.* 1.

Inhabits the southern coasts of Devon and Ireland.

CLASSIS VI. BRACHIOPODA.

Brachiopoda, *Cuvier*.

The body covered with two shells; the shells furnished with two or three closing muscles, but the closing tendon is wanting; the head is hidden; the eyes, lip and tentacula are wanting; the branchiæ are placed at the sides of the abdomen, and are bilobate, with their margins furnished with minute leaves; the mantle is open, and covers the anterior and posterior parts of the body; and their two slender lobes cover the branchiæ, but do not form tubes; the arms are two and fleshy, margined with many filaments, which represent the foot in the Class Ginglymaconcha: the sexes are androgynous, and ovo-viviparous.

General Observations on this Class.

The animals of this Class, like the Ginglymaconcha, have a bilobate mantle, and this mantle is always open; but their branchiæ, which are also bilobate (as in most of the families of Ginglymaconcha), are bordered with small foliations or leaves on each lobe interiorly: in lieu of the foot in the Ginglymaconcha, they have two fleshy arms, covered with numerous filaments, which are withdrawn when the valves are closed.

They have two aortic hearts, and a flexuous intestinal canal, which runs round the liver; the mouth is situated between the bases of the arms; the anus is situated on one of their sides. But little is known respecting the circulation, or the nervous system.

This Class contains but three genera, *Lingula* and *Terebratula* of Bruguière; and the *Criopus*, Poli; *Crania*, Lamarck; *Orbicula*, Cuvier: the two last only are natives of Great Britain.

Genus 1. CRIOPUS.

Criopus, *Poli.*
Crania, *De Lamarck.*
Orbicula, *Cuvier, Blainville.*

Shell inequivalve, suborbicular; the right valve flat and fixed beneath; its interior surface is perforated with three unequal oblique openings; the left valve is convex and rather gibbous, and internally is furnished with two protuberances.

CRIOPUS ORCADENSIS.

The shells with their right valve conic, smooth, with the epidermis orange, painted with red circles; their left valve flattened, with the epidermis iridescent, variegated with purplish pink and fulvous, internally purplish, with its margin greenish. Length six lines; height five and three-quarter lines.

This extremely rare species was taken in the Orkneys in very deep water by Mr. W. Bullock, together with two specimens of *Terebratula striata,* adhering to the same stone.

Genus 2. TEREBRATULA.

Terebratula, *Bruguière, Lamarck, Cuvier.*

Shell inequivalve, regular, rather trigonal, with a short peduncle affixed to marine bodies ; this peduncle is ciliated at its base ; the umbo of the right valve is produced and sometimes is incurvated, its apex perforated or notched ; the hinge has two teeth, bidentated at their bases internally ; those in the left valve are very much elongated, thin, curved internally, and sometimes furcated or forked, which serves as a fulcrum to support the animal.

1. TEREBRATULA GLABRA. Tab. XIV. figs. 3, 4, 5.

The shells smooth and polished ; the epidermis on the middle of both valves pale orange ; their margins painted with orange and purplish, mingled together. Length nine inches and a quarter ; height eleven inches and three-quarters.
Terebratula Cranium, *Mont. Trans. Linn. Soc.* xi. 182.
Anomia Cranium, *Turt. Conch. Dict.*

This species inhabits the deep sea on the coasts of Devon, where it is extremely rare, but is not uncommonly found in the Shetland seas.

The interior surface of both valves iridescent, painted with orange and purplish.

2. TEREBRATULA STRIATA. Tab. XIV. figs. 1, 2.

The shells sculptured with divaricating striæ ; the epidermis in one valve iridescent, with the margins of the shell pale fuscous, in the other valve iridescent, variegated with brown, tinged with orange, purple and yellow. Length nine lines and a quarter ; height half a line.

Inhabits the seas of Shetland, the Orkneys, and the western coasts of Devonshire, and is extremely rare.

The interior surface of the valves whitish.

SUPPLEMENT.

1. EUCLUSÆA PANDORIDA.

The shells equivalve, equilateral, gibbose; their umbones recurved; the hinge with rather unequal teeth in the left valve, and with a minute thick lamella placed before the umbones in each valve.

2. EUCLUSÆA FRAGILIS.

The shells smooth, pale testaceous or glossy, shining, sculptured with concentric striolæ. Length seven lines; height six lines.

This species inhabits the deep sea on the western coasts of Devon in deep water, on a sandy bottom.

APPENDIX.

CLASSIUM CHARACTERES.

CLASSIS I. CEPHALOPODA.

Corpus in sacco immersum. *Saccus* cloacâ corporis parte anteriore locatâ instructus. *Caput* prominens. *Os* centrale, *mandibulis* duabus fortissimis rostrum psittaci inversum referentibus, armatum. *Labium* circulare, carneum, mandibulas amplectit; interne reflectitur, annulum tenuem circum oris partem carnosam efformans. *Oculi* duo, laterales, perfectissimi. *Branchiæ* duæ filices contortas referentes; una ad sacci latera dextra et sinistra locatur. *Pedes* octo aut decem *os* circumdant; aspectis interioribus sæpius antliatis. *Sexus* distinctus, perfectus.

CLASSIS II. PTEROPODA.

Corpus oblongum, membranaceum, pallio nullo instructum. *Caput* bilobatum, exsertum, rotundatum, tentaculis nonnullis aut plurimis minutis instructum. *Os labiis* minutis, carnosis, et *linguâ* antice et super caput locatis instructum. *Oculi* duo, superi, aut laterales. *Branchiæ* duæ, membranaceæ, reticulatæ (*pinnas* referentes), ad colli latera externe locantur. *Sexus* hermaphroditus.

CLASSIS III. GASTEROPODA.

Corpus pallio instructum, aut *testâ* unâ internâ aut externâ instructum. *Caput tentaculis* duobus aut quatuor instructum; in generibus nonnullis *oculi, labium, lingua* et *mandibulæ* inveniuntur; in perpaucis desunt. *Os* sæpius carnosum et durum est. *Branchiæ* in nonnullis externæ; in aliis internæ, structurâ et formâ valde variantes. *Pes* ventralis locomotionis organum est. *Sexus* distinctus, perfectus; hermaphroditus aut androgynus. Genera nonnulla sunt ovipara.

CLASSIS IV. ASCIDIÆ.

Corpus plus aut minus cylindricum, *tegmine* coriaceo aut tenuissimo tectum, supra in *tubos* duos, cylindricos, unum branchialem et alterum analem, producto. *Caput* reconditum. *Os* aperturâ rotundâ sulcatâ, aut *tentaculis* et *denticulis* instructâ. *Branchiæ* duplices, reticulatæ, pallio tenuissimo tectæ; *pallium* tegmentis exterioris superficiem interiorem et tubos munit. *Sexus* androgynus, oviparus.

CLASSIS V. GINGLYMACONCHA.

Corpus testis duabus tectum. *Testæ cardine ligamento* elastico interno aut externo, ginglymoïde aperiente, et *musculis, tendonibusque* claudentibus uno aut pluribus instructæ. *Caput* reconditum. *Os* antice locatur. *Oculi, labium* et *tentacula* desunt. *Branchiæ* duæ, lobatæ, tenues, reticulatæ, ad abdominis latera locantur, et pallii lobis teguntur. *Pallium* corpus tegit; lobi duo tenues branchias tegunt, et sæpius postice in tubos duos elasticos, unum branchialem et alterum analem, producuntur. *Pes* antice locatur; ex abdominis extremitate exsurgit, et inter pallii junctionem anticam exit et retrahitur. *Sexus* androgynus, ovo-viviparus.

CLASSIS VI. BRACHIOPODA.

Corpus testis duabus tectum; *testæ* musculis adductoribus duobus aut tribus instructæ, ut *tendo* claudens deest. *Caput* reconditum. *Os* antice locatur. *Oculi, labium* et *tentacula* desunt. *Branchiæ* bilobatæ, marginibus foliis minimis instructis, ad abdominis latera locantur. *Pallium* corporis partes anteriores et posteriores tegit; lobi duo tenues branchias tegunt; at tubi nulli formant. *Brachia* duo, carnosa, *filamentis* plurimis instructa, *pedes* Ginglymaconchorum repræsentant. *Sexus* androgynus, ovo-viviparus.

CLASSIS I. CEPHALOPODA.

General Observations on the Anatomical Structures of Cephalopoda.

The head, which is situated at the anterior part of the body, projects beyond the opening of the sac. The mouth contains a tongue bristled with tubercles, which are more or less acute in the different genera. The eye is very complicated in its structure; it is formed of several membranes, which are covered by a skin which becomes transparent in passing under it; it is sometimes turned backwards, and sometimes serves to form the eyelash: the eyes are very different in their structure from those of vertebrose animals; they are nevertheless more perfectly formed for vision than those in any other class of animals: the ear consists of a small cavity on each side near the brain, and is suspended in a membranaceous sac, which contains a small stony substance.

The sac contains all the organs of digestion, circulation, respiration, generation, and the gland which secretes the black liquor. On the lower and anterior part of the sac is situated the cloaca, which is furnished with a valve to prevent water from entering into the sac through its cavity: at the base of the cloaca terminates the lower intestine and the duct conveying the black liquor from the gland which secretes it. The sac is short and oval in Polypus, Eledona, Sepiola and Cranchia*; much elongated, more or less acute in most of the genera of the Family Loliginidæ. In all the Order Decapoda, the sides are furnished with membranaceous appendages, serving them for moving in the water. In Sepia they are very slightly prominent, extend nearly the whole length of the body, and do not unite behind. In Sepiola they rise abruptly from the middle of the sac, and resemble wings: in all the genera in the Family Loliginidæ, they rise above the middle of the sac, unite behind, and in most of the European genera they are more or less acutely narrower behind; but in some of the North American and South African genera they are either obtuse behind or rounded.

The branchiæ in all the genera, which resemble more or less contorted ferns, are situated at the sides of the sac.

The organs of circulation consist of three hearts; the ventricle is situated near the centre, near the bottom of the sac, and sends the blood round every part of the body ; the two lateral ones are situated at the base of the branchiæ (gills), and perform the pulmonary circulation, and send their blood to the ventrical by two branchial veins. The central heart in the Decapoda is semicircular, in Sepiadæ trilobate ; in Loliginidæ the lateral hearts have appendages resembling the auricles in the higher class of animals ; in Sepiadæ a concave spongy substance adheres to the inferior parts of the lateral hearts.

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* An African genus.

The organs of digestion consist of a cæcum and long intestine ; the latter, together with the duct, conveying the black liquor from the gland which secretes it : both terminate at the base of the cloaca anteriorly. The œsophagus in Polypus is greatly dilated before entering into the stomach, and is buried in and protected by a very hard substance ; in Eledona the dilatation is rather less, and the substance which protects it spongy. In Sepioladæ and Loliginidæ, the œsophagus is simple ; the stomach in Sepiadæ is simple and slender.

The organs of generation are situated at the bottom of the sac in all the genera that have been examined, and consist in the male of vesiculæ seminales (seminal vessels), terminating in a common aperture, whose sides are slightly produced into a tube. In the female the ovaria (the ovaries) are two, and in most of the genera terminate by a common duct ; in others by two oviducts.

The glans atrifera, or the gland which secretes the black liquor (named Atramentum by the ancients, and minutely mentioned by Pliny), is composed of a spongy substance ; is immersed in the under surface of the liver in all the genera of the Order Octopoda ; is placed under it in all the genera of the Order Decapoda ; and terminates in a duct varying much in proportional diameter and length in the different genera ; but in all the genera this duct terminates close to the anus at the base of the cloaca.

Their nervous system is very remarkable : the brain is situated on the lateral and anterior parts of that cartilage (through which the œsophagus passes to join the stomach), is very irregularly formed, and is remarkably small : those masses of cerebral matter formed by the junctions of the fibres of the optic nerve, are nearly thrice the size of that cerebral mass denominated the brain. The anterior part of the heart receives internally some very slender fibres from the region of the mouth, and many of these fibres sometimes unite before they join the lateral aspects of the brain ; but the smaller fibres of the nerves, which arise from the different parts of the sac, and from the intestines, join the posterior part of the brain.

Their eggs vary very much in their formand colour in the different genera: they are all pedunculated and agglutinated into masses, resembling bunches of grapes; they are deposited in the bottom of the ocean, generally in very deep water, and most commonly on sandy bottoms; they are frequently thrown up on the low sandy shores of our coasts after hard gales of wind, and are sometimes found deposited in sandy pools at the lowest ebb-tides.

CLASSIS II. PTEROPODA.

Pteropoda, *Cuvier.*

Corpus oblongum, membranaceum, nec pallio nec pede instructum. *Caput* bilobum, rotundatum, sæpius exsertum, tentaculis nonnullis minutis instructum. Os labiis minutis carnosis et lingua instructum. *Oculi* duo, laterales, aut superi. *Branchiæ* duæ, branchiales membranaceæ, reticulatæ (alas referentes), ad colli aut ad capitis latera externe locatæ. *Sexus* hermaphroditus.

The animals of this Class inhabit the ocean, most generally far from any land; they swim like the animals of the Class Cephalopoda, but never rest on any floating or other substances, and only appear on the surface when it is perfectly calm. Their branchiæ or gills, resembling wings, varying in their form in the different genera, and sometimes species, serve the double functions of respiration and locomotion.

The liver in most of the genera is rather larger than in the Class Gasteropoda.

Genus Clio.

"*Corpus* nudum, gelatinosum, oblongum, turbinatum, natans. *Caput* exsertum tentaculis pluribus minutis retractilibus, in fasciculis duobus onustum. *Oculi* duo superi. *Os* terminale. Pinnæ duæ branchiales, obovatæ, oppositæ ad colli basin lateraliter insertæ. Anus et generationis apertura infra pinnam, in latere dextro, collocati."—*Lamarck, Hist. Nat. des Anim. sans Vert.* vii. 286.

The body is naked, gelatinous, oblong, turbinated and formed for swimming. The head is exserted, laden with many minute retractile tentacles arranged into two bundles. Two eyes are situated on the upper part of the head. The mouth is terminal. Two branchial oblong-ovate fins are situated opposite each other on the sides of the neck. The aperture named the anus and that of the organs of generation are situated beneath the fin on the left side of the body.

CLIO BOREALIS.

C. gelatinosa, pellucida; pinnis subtriangularibus; caudâ acutâ.

Clio Borealis, *Pallas, Spicil. Zool.* 10. p. 28. t. i. f. 3–4; *Brug. Encycl. Méthod.* pl. 75. f. 3–4; *Lam. Hist. Nat. des Anim. sans Vert.* vii. 288; *Cuv. Règ. Anim.* ii. p. 379; *Leach, Ross, Voyage to Baff. Bay, Suppl.*

Clio retusa, *Fabr. Faun. Grœn.* p. 334. no. 324.

Clio limacina, *Phips. C. Ellis, Zooph.* p. 15. no. 324.

Habitat in oceano Boreali vulgatissime.

Animal gelatinous, pellucid; fins somewhat triangular; tail acute.

This species is extremely common in the Northern seas, and forms the principal food of the cetaceous animals.

In 1811, during a tour made by me to the Orkneys with some friends, I observed on the rocks on that side of the Isle of Staffa, several mutilated specimens of this animal: the three previous days had been extremely stormy, so as to confine us to the isle Colunsa. Some days afterwards I borrowed from a fisherman a large shrimp-net; and on rowing along the coast of Mull, when the sea was calm, after many vain efforts I was at last enabled to capture one of them alive: this specimen is in that part of the Zoological Collection which I presented to the British Museum.

CLASSIS III. GASTEROPODA.

Gasteropoda, *Cuvier, Lamarck.*
Vermes testacea, *Linnæus.*

Corpus pallio instructum, nudum aut testâ unâ internâ aut externâ instructum. *Caput* tentaculis duobus aut quatuor instructum; in generibus nonnullis oculi, labium, lingua et mandibulæ inveniuntur, in perpaucis desunt. *Os* sæpius carnosum et durum est. *Branchiæ* in nonnullis externæ, in aliis internæ, structurâ et formâ valde variantes. *Pes* ventralis locomotionis organum est, per corporis superficiem inferiorem plus aut minus adhærens. *Sexus* distinctus, perfectus, hermaphroditus aut androgynus. Genera nonnulla sunt ovipara, ovo-vivipara aut vivipara.

Ordinum Synopsis.

* *Sexus hermaphroditus.*

OVIPARA.

Branchiæ nullo modo tectæ, dorsales	I. GYMNOBRANCHIA.
Branchiæ dextræ, laterales aut dorsales, sub pallii processu tectæ. Testa interior aut externa	II. STEGOBRANCHIA.
Branchiæ saccum interne tegentes et non elevatæ. Testa interior, aut exterior vel nulla; nunquam operculata	III. SACCOBRANCHIA.

** *Sexus distinctus.*

OVIPARA.

Branchiæ e foliis plurimis parallelis efformatæ. Testa exterior, spiralis, in plurimis operculata	IV. PHYLLOBRANCHIA.
Branchiæ reticulatæ saccum cavum interne tegentes, non elevatæ. Testa exterior spiralis operculata. Operculum testaceum	V. ANTROBRANCHIA.

OVO-VIVIPARA.

Branchiæ fasciculorum filamentorum compositæ, ad cavitatem branchialem adhærentes. Testa conica operculata. Operculum corneum	VI. SPARTÆBRANCHIA.

*** *Sexus androgynus.*

OVIPARA.

Branchiæ e foliis plurimis efformatæ, sub testam positæ. Testa exterior, non operculata	VII. ASPIDOBRANCHIA.
Branchiæ e foliis efformatæ, inter pedis basin et pallium positæ. Testa exterior, sæpe multipartita, nunquam operculata	VIII. CYCLOBRANCHIA.

EXPLANATIONS OF THE DESCRIPTIVE PLATES.

A General Reference of the Letters explaining the Parts of the Animals in Plates II. III. IV. V*. and V**.

A. Abdomen; the part of the body containing the intestines, and sometimes the nervous system and gills.

A. — *u.* Abdominis umbones. Those parts of the abdomen which fill the umbones.

An. Anus; the termination of the intestinal canal.

Ap. Apertura; aperture applied to the opening of any cavity.

’Α*π*. Apophysis: *u.* umbonica of the umbones; *crd.* of the hinge.

Br. Branchiæ, gills: *d.* dextræ, right; *s.* sinistræ, left; *e.* externæ, external; *i.* internæ, internal.

Bss. Byssus, beard; composed of tendinous fibres, and is attached to the foot of some of the Class Ginglymaconcha or Bivalves.

C. Cor, heart: *a.* auriculæ, auricles; *v.* ventriculus, ventricle or ventricles.

Cl. Collum, neck.

Cr. Cordiformis, heart-shaped.

Crd. Cardo, hinge: *d.* dentes, teeth; *c.* cardinales or hinge teeth; *ca.* the anterior; *cp.* the posterior tooth or teeth of the hinge.

Dr. Dorsum, back.

E. Epidermis, the skin or integument with the shell externally.

H. Hepar, liver: *h. r.* hepatis regio, region of the liver.

I. Intestina, intestine: *œ.* œsophagus; *g.* gegerium, gizzard; *r.* rectum; *v.* ventriculus, stomach.

Im. Impressio, impression, such as is made on the shell where the muscles are attached: *c.* cordiformis, cordiform, the umbilicus or navel.

Im. cr. Cordiform impression.

L. Ligamentum, ligament: *a. a.* ligamentum adductor anticum, anterior closing ligament; *a. p.* ligamentum adductor posticum, hinder closing ligament; *c.* cardinale or hinge ligament; *e.* ligamentum externum cardinale, the external or cardinal ligament, which is placed over the teeth, and, when it resembles a hinge, is then termed ginglymoïdes; *i.* ligamentum internum cardinale, the internal ligament of the hinge.

Lb. Labia, lips: *i.* inferius, under lip; *f.* fimbriatum, fringed lip; *s.* superius, upper lip.

Lt. Latera, sides.

Ln. Lingua, tongue.

M. Musculus, muscle: *a. a.* musculus adductorius anticus, anterior closing muscle; *a. p.* musculus adductorius posticus, posterior closing muscle; *o.* musculus orbicularis, orbicular muscle; *o. a. j.* musculorum orbicularium junctio antica, anterior junction of the orbicular muscles; *o. p. j.* musculorum orbicularium junctio postica, posterior junction of the orbicular muscles; *s. a.* musculi longitudinales abdomen suspendentes et pedem retrahentes, longitudinal muscles supporting the abdomen and retracting the foot; *a. a. i.* musculi adductoris antici impressio, impression of the anterior closing muscle; *a. p. i.* musculi adductoris postici impressio, impression of posterior closing muscle; *tr. r. i.* musculi tracheas retrahentis impressio, impression of the muscle which withdraws the tracheæ.

Mn. Mandibulæ, jaws.

Mr. Margo, margin: *a.* anterior; *i.* inferior; *p.* posterior; *s.* superior.

O. Ovarium, ovary.

Oc. Oculus, eye.

Op. Operculum, opercule or lid.

Os. Os, mouth.

P. Pes, foot.

Pc. Pericardium, the cavity which contains the heart.

Pl. Pallium, mantle: *dx.* lobus dexter, right lobe; *sn.* lobus sinister left lobe; *j. a.* junctio antica, the anterior junction; *j. p.* junctio postica, the posterior junction.

Pt. Peritrema, peritreme; the hard secretion on the borders of the univalve shells, from the part from which the animal issues.

R. Regio, region; the situation of any part.

T. Testa: *a.* aspectus, aspect; *dx.* dexter, right; *i.* inferior; *sn.* sinister, left; *s.* superior; *a.* testæ accessoriæ, supplementary shells; *ap.* apex, point; *b.* basis, bottom or base; *v.* valvæ, valves; *dx.* dextra, right; *sn.* sinistra, left valve; *u.* umbones; *cn.* cuniculus, syphon or groove.

Tn. Tentacula, tentacles; *s.* superiora, superior; *i.* inferiora, inferior; *dx.* dextra, right; *sn.* sinistra, left tentacles.

Tr. Tracheæ, respiratory tubes: *i.* inferior; *s.* superior.

Vl. Valvæ, valves: *u.* umbilicus, navel.

PLATE I.

This Plate is explanatory of the nomenclature of the external and internal parts of the Loligo magna, belonging to the Class Cephalopoda. (This Plate has not been found.)

Fig. 1*. View of the mouth, showing the situation of the mandibles or beak, surrounded by the lips and ten legs, two of which are longer than the others, and may be termed brachia, arms.

Lb. Labium, lip.

Ανχ. The annular reflection of the lip.

X. A dilatation of the lip into an angulated membrane, whose angles are furnished with antliæ or suckers armed with horny rings, as in figs. 2 and 3.

P. Pedes, feet.

P. s. Pedes superiores, upper feet.

P. int. Pedes intermedii, intermediate feet.

P. i. Pedes inferiores, inferior feet.

P. sp. Pedes supplementarii aut brachia, supplementary feet or arms.

'Αντ. Antliæ, suckers.

Fig. 2. One of the suckers of the arms, highly magnified, viewed from beneath to show its peduncle.

Fig. 3. One of the horny rings of the suckers, very highly magnified, to show the serratures of the outer edge.

Fig. 4*. Mandibulæ, mandibles or beak, of the natural size.

Fig. 5. The sac or body lying on its back, opened up the middle, and the right side turned back, to show the natural position of the branchiæ or gills. The Figure is half the size of the specimen from which it was delineated.

Cl. The cloaca, with its left side turned back, to show its valve (VI.), which prevents the water from passing through it into the sac.

'Εξ. A groove in the cartilage of the cloaca to receive a process of cartilage, χνδ, projecting from the inside of the sac.

At. gl. c. Atramenti glandula canalis. The ductor canal which conducts the black liquor from the gland which secretes it to the bottom of the cloaca, through which it is ejected, along with the water contained in the sac, to darken the water, so as to defend itself from its enemies.

Pn. Pinna, fin.

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* Figs. 1 and 4 are of the natural size of the animal from which this Figure was delineated.

Ml.	Musculus longitudinalis, a longitudinal muscle, whose use is uncertain.
Br.	Branchiæ, gills of the right side.

Fig. 6. Anterior aspect of the cartilaginous base of the skull, of its natural size. This aspect supports the brain.

Fig. 7. Posterior aspect of the same cartilage.

S.	Aspectus superior, superior aspect.
I.	Aspectus inferior, inferior aspect.
Dx.	Aspectus dexter, right aspect.
Sn.	Aspectus sinister, left aspect.
Ap. œ.	Œsophagi apertura, the aperture for the passage of the œsophagus into the stomach.

PLATE II.

The intention of this Plate is to demonstrate the nomenclature of the external parts of the testaceous animals of the Class Gasteropoda.

Fig. 1. Helix aspersa, creeping against a window, and thus showing its four tentacles, the two eyes, the mouth, the under lip, the neck, the lower border of the mantle, the lateral aperture, and the undulations of the muscles of the foot when creeping, in their natural position.

Fig. 2. Helix aspersa, an open-turreted variety creeping and showing its back.

Fig. 3. Trachea nemoralis, a slightly-turreted variety.

Fig. 4. Gulnaria peregra, creeping.

Fig. 5. Gulnaria peregra, swimming, when the under part of its foot glides along the surface of the water, the shell being immersed.

Fig. 6. Ancyclus fluviatilis, creeping.

Fig. 7. Planorbis marginatus, creeping.

Fig. 8. Planorbis marginatus, swimming, showing the umbilicus of the shell.

Fig. 9. Bithynia impura, creeping, showing the position of its operculum.

Fig. 10. Buccinum undulatum, creeping and showing its syphon or respiratory tube, and the channel or groove in the shell through which it passes, when the animal is withdrawn into the shell.

Fig. 11. Patella vulgata, the under view, showing its external branchiæ, gills, the foot, borders of the mantle, and the tentacula.

Parts of the Shells.

Mr. a.	Margo anterior, anterior margin.
Mr. p.	Margo posterior, posterior margin.
Mr. dx.	Margo dexter, right margin.
Mr. sn.	Margo sinister, left margin.
Pr.	Peritrema, peritreme.
P. anf. i.	Anfractus inferior, lower whorl.
T. ap.	Testæ apex, apex of the shell.
T. b.	Testæ basis, base of the shell.
T. s.	Testæ syphon, syphon of the shell.
U.	Umbilicus, umbilicus of the shell.

External Parts of the Animals.

Ap. l.	Apertura lateralis, lateral aperture.
B.	Branchiæ, branchiæ or gills.
Dr.	Dorsum, back of the animal.
Lb.	Labium, lip.
Lb. i.	Labium inferius, lower lip.
Oc.	Oculus, eye.
Op.	Operculum, operculum or opercule.
Os.	Os, mouth.
P.	Pes, foot.
P. l.	Pedis latera, sides of the foot.
Pl.	Pallium, mantle.
Tn. s.	Tentacula superiora, superior tentacles.
Tn. i.	Tentacula inferiora, inferior tentacles.
Tn. dx.	Tentacula dextra, right tentacles.
Tn. sn.	Tentacula sinistra, left tentacles.
T. s.	Respirationis syphon aut tubus, syphon or respiratory tube.

PLATE III.

The figures in this and in all the following descriptive plates are explanatory of the external and internal structures of the Class Ginglymaconcha.

Fig. 1. The left valve of Pholas Dactylus, containing the animal entire, the whole of the right valve being removed, except the umbonic portion. In this view the right mantle is seen entire, and also the right umbonic apophysis.

’Απ. *u.* The attachment of the right posterior muscle and the right retracting muscle of the respiratory tubes may be seen in their natural positions. The umbonic portion of the right valve, which remains, shows the large size of the perforations destined for the attachment of the branches of the anterior adductor muscle.

Tr. The reflection of the shell over the umbones in Figs. 1 and 2.

Fig. 2. This Figure represents the same animal, the right valve and mantle being entirely removed, and the respiratory tubes split vertically, their left sides alone remaining.

The lips, the foot, the pointed abdomen, the position occupied by the branchiæ, the cells behind the branchiæ, and the course of the orbicular muscle, may be distinctly seen.

Fig. 3. Gastrochæna Faba, viewed lying on its left side, its respiratory tubes being fully exserted. The very small aperture for the exit of its foot is seen between the anterior and posterior junctions of the mantle.

Fig. 4. Mya arenaria, in nearly the same view as Pholas Dactylus in Fig. 2; the right orbicular muscle still remaining. The aperture for the exit of the foot is small and narrow, situated in the same position as in Fig. 3.

For all the letters referring to the parts of the shells and their animals in this Plate, see the preceding Explanation.

PLATE IV.

Fig. 1. Callista verrucosa, viewed from above, showing the slightness of the inequality of its valves, is intended to explain the names of its external parts and characters.

Fig. 2. Inner view of shell of Callista verrucosa, showing the muscular impressions: the specimen here figured exhibits the impression of the retractor of the respiratory tubes, much longer than is generally observed to exist in this species.

Fig. 3. Cardium edule. The animal in its left valve; the right valve and the right mandible being removed. This Figure exhibits the anterior and posterior cardinal teeth projecting through the mantle; the part of the abdomen which fills the right umbo; and the respiratory tubes, which are vertically divided to render visible a little valve within the upper one. The situation of the termination of the intestinal canal, above and behind the posterior adductor muscle, is seen distinctly.

Fig. 4. The muscular system of Mytilus pellucidus. The anterior and posterior adductor muscle and the posterior adductor ligament: two longitudinal muscles are attached by their extremities to the valves, near to the insertion of the adductor muscles, for retracting the foot and supporting the abdomen: these muscles are always more or less confluent towards the middle of their course; and in the genera Mytilus and Modiola they give off six or seven lateral branches on each side, which are attached to the valves behind or at the middle of the shell. The byssus, terminated by suckers, arises from the tubercle at the posterior base of the foot, and is composed of tendinous fibres.

Fig. 5. Mytilus pellucidus, the right valve and mantle being removed. Below the cardinal ligament are certain perforations in the shell, whose use is not known. The dotted line shows where the right mantle was cut off. In this point of view, the lateral branches of the left mantle, which supports the abdomen and retracts the foot, are visible in their natural position.

Fig. 6. The back view of Unio ovalis, the dorsal portion being removed, to show the situation of the liver, the heart, and the intestinum rectum.

L. r. in Figs. 3 and 4 signifies the lateral ridge of the skull.

For all the letters referring to the parts of the animals and their shells in this Plate, see the preceding Explanation.

PLATE V*.

Fig. 1. Represents the Pecten maximus, or great Scallop; its right valve and the right mantle being removed from that part indicated by the dotted line.

The superior margin of the shell, *t. mr. s.*, is angulated anteriorly and posteriorly: these angulated parts are named auricles or ear-like processes. Οἴδ represents two protuberances, which it has in common with Pecten opercularis and most of its foreign congeners, in one or both valves. θ is the part named by Poli Viscera testacea: the uses of both these parts are unknown.

Fig. 2. Represents a vertical section of the Ostrea edulis, or common oyster. The dotted part represents that part of the intestinal canal which was removed from the right side of the animal to show other parts. The mouth, *os*; the lobes of the lips, *lb.*; the œsophagus, *i. œ.*; the stomach, *i. v.*; from which the intestinal canal is continued, which, after turning twice, it ascends above the posterior adductor muscle, *m. a. p.*, and the internal cardinal ligament, *l. a. p.*, and terminates in the intestinum rectum and the anus, *i. r. a.*, all shown in this Figure; and also the liver, *h.*; cells, *b. c.*, behind the branchiæ or gills, *b.*, over which the ova (eggs) are conveyed from the ovarium, *o.*; the orbicular muscle, with its double fringe, within the orbicular muscle, *m. o.*: the mantle is furnished with a vast number of monogastric muscles, terminating in tendons, all of which terminate at one point, *pl. m. r.* The orbicular muscles of the right and left sides are joined posteriorly, *m. o. j. p.*, at the point where the branchiæ terminate.

For all the letters referring to the parts of the animals and their shells in this Plate, see the preceding Explanation.

PLATE V**.

This Plate represents Anomia Ephippium and its most essential parts.

Fig. 1. Represents the left valve of the shell, the right valve being removed: this shows the animal entire in its natural position.

L. i. The internal ligament: *m. a. a.* the anterior closing muscle; *m. a. p.* the posterior closing muscle; *pl.* the mantle.

Fig. 2. Represents the same animal, the right part of the mantle being removed: *b.* the branchiæ; *c.* the heart; *pl.* the mantle; *i. r.* the intestinum rectum, or terminal intestine.

Fig. 3. Represents the right valve, containing the animal entire, the left valve being removed: *maa. spp.* a supplementary muscle closing the shells; *pl. s.* the left lobe of the mantle; *pl. r.* the right lobe of the mantle; *h. r.* the region of the liver.

For all the letters referring to the parts of the animals and their shells in this Plate, see the preceding Explanation.

PLATE VI.

Fig. 1. Sepiola Rondeletii, under view.

Fig. 2. Sepiola Rondeletii, upper view.

Fig. 3. The bone of Sepiola Rondeletii, magnified; its natural length is indicated by the little line by its side.

Fig. 4. Loligo parva, upper view.

Fig. 5. Loligo parva, under view.

Fig. 6. The bone of Loligo parva, of its natural size.

Wherever the little line in any of the Plates is omitted, the objects represented are drawn of their natural size, unless otherwise specified.

PLATE VII.

Fig. 1. Doris Elfortiana.
Fig. 2. Tritonia Hombergii.
Fig. 3. Eolidia Cuvieri.
Figs. 4 & 5. Cleantus Montagui.
Figs. 6 and 7. Shell.
Fig. 8. Esmia Griffithsiana.
Figs. 9 and 10. Shell.
Fig. 11. Roscania Cranchii.

PLATE VIII.

Fig. 1. Arion empiricorum, collapsed. *Fig.* 2. Var. β., extended.
Fig. 3. Limax carinatus and its internal shell of the natural size, and magnified.
Figs. 4, 5 and 6. Teba Carthusianella and its animal.
Fig. 7. Clausilia Rolphii.
Figs. 8 and 9. Azeca Matoni and its animal.
Fig. 10. Vertigo palustris and its animal.

PLATE IX.

Fig. 1. Temesia variabilis. *Fig.* 2. Trochus Montagui.
Fig. 3. Epheria Goodallii.
Fig. 4. Assiminia Grayana with its animal. *Fig.* 5. The Operculum.
Fig. 6. Turbo sulcatus. *Fig.* 7. Margarites diaphana.
Fig. 8. Scalaria clathrus with its animal.
Figs. 9 and 10. Scalaria Turtoniana.
Fig. 11. Zippora Drummondiana.

PLATE X.

Fig. 1. Hima lævigata. *Fig.* 2. Bela lineata.
Fig. 3. Fusus asperrimus. *Figs.* 4 & 5. Cemoria Flemingiana.
Fig. 6. Cemoria Montaguana. *Fig.* 7. Chiton punctatus.
Fig. 8. Acanthochætes vulgaris.

PLATE XI.

Figs. 1–7. Cadmusia Solanderia, adult and young.

PLATE XII.

Figs. 1 & 2. Magdalia striata. *Figs.* 3 & 4. Lembulus sulcatus.
Figs. 5–7. Autonoë rubra. *Fig.* 8. Hermione laminosa.
Fig. 9. Modiola Prideauxiana. *Figs.* 10–13. Corbula nucleus.

PLATE XIII.

Figs. 1 & 2. Terebratula striata. *Figs.* 3–5. Terebratula glabra.
Figs. 6–8. Criopus Orcadensis.

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II.

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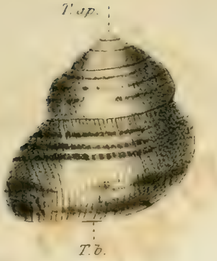

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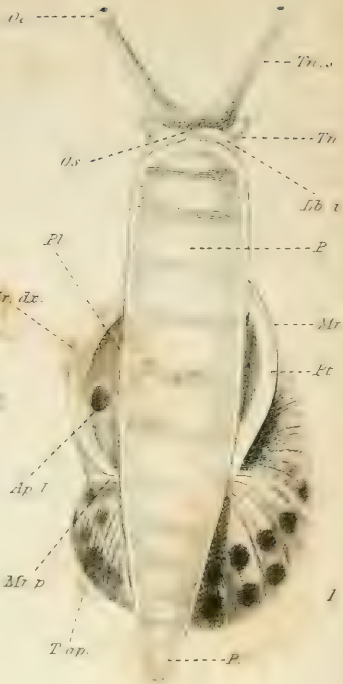
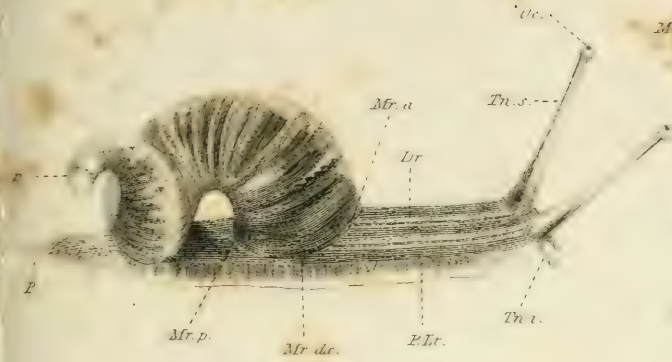
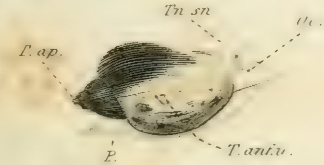
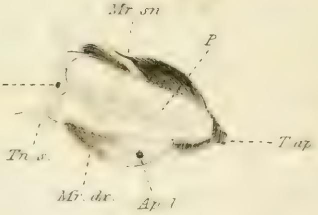

Oc
Tn. s
Tn i
Os
Lb i
P
Pl
Mr. dx.
Mr s.
Pt
Ap l
Mr p
T ap.
P.

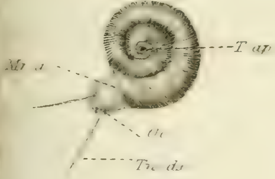

Oc.
Tn. s.
Mr. a
Dr
P
P
Mr. p.
Mr. dx.
P. Lt.
Tn i.

4

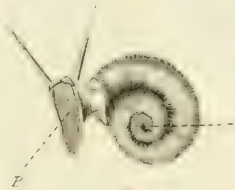

Tn sn
T. ap.
Oc.
P.
T. antr.

5


Mr sn
P
Os.
Tn s.
Mr. dx.
Ap l
T ap.


T ap
Mr a
Oc
Tn ds

8



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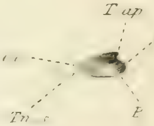
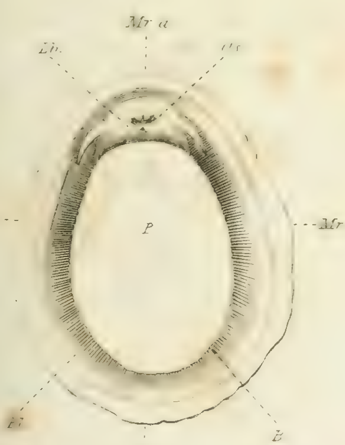
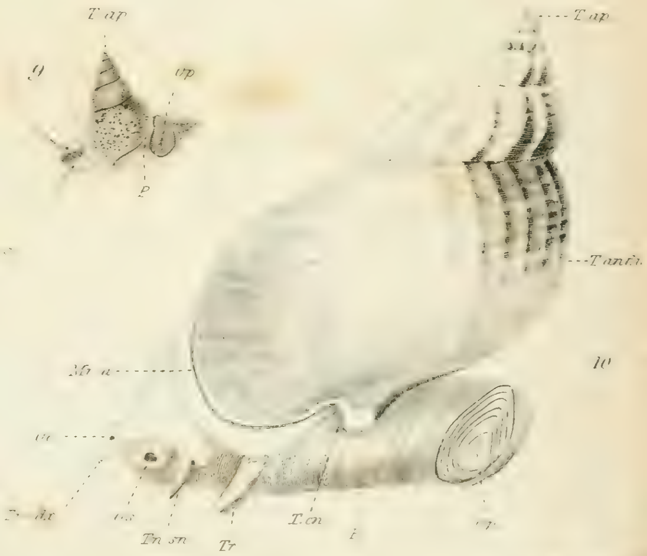

T ap
Mr p
Oc
Tn s
P

11


Mr a
Lb.
Os
Mr d
P
Mr s
Br.
Br
Mr p

9

10


T ap
Op
P
T ap
T antr.
Mr a
Oc
Tn dx
Os
Tn sn
Tr
T. cn
P
Op

Curtis sculp

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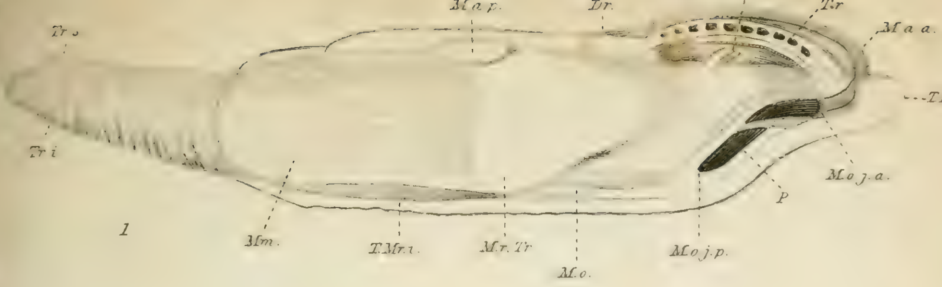
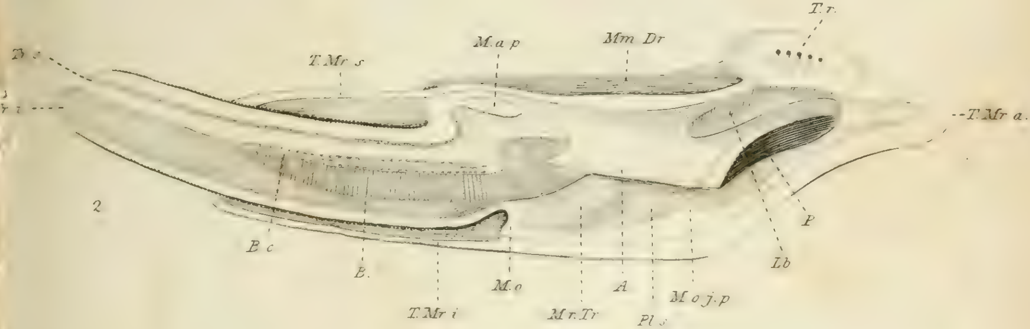
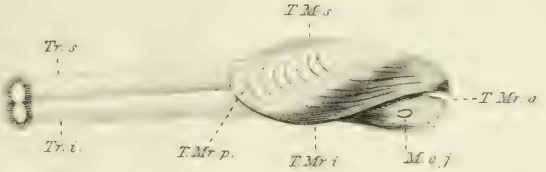
III


Tr.s
Tr.i
M.a.p.
Dr.
A.II.u
Tr
M.a.a.
T.Mr.a
M.o.j.a.
P
M.o.j.p.
M.o.
M.r.Tr
T.Mr.i.
Mm.

1


Tr.s
Tr.i
T.Mr.s
M.a.p
Mm Dr
T.r.
T.Mr.a.
P
Lb
M.o.j.p
Pl.s
A
Mr.Tr
M.o
T.Mr.i
B.
B.c

2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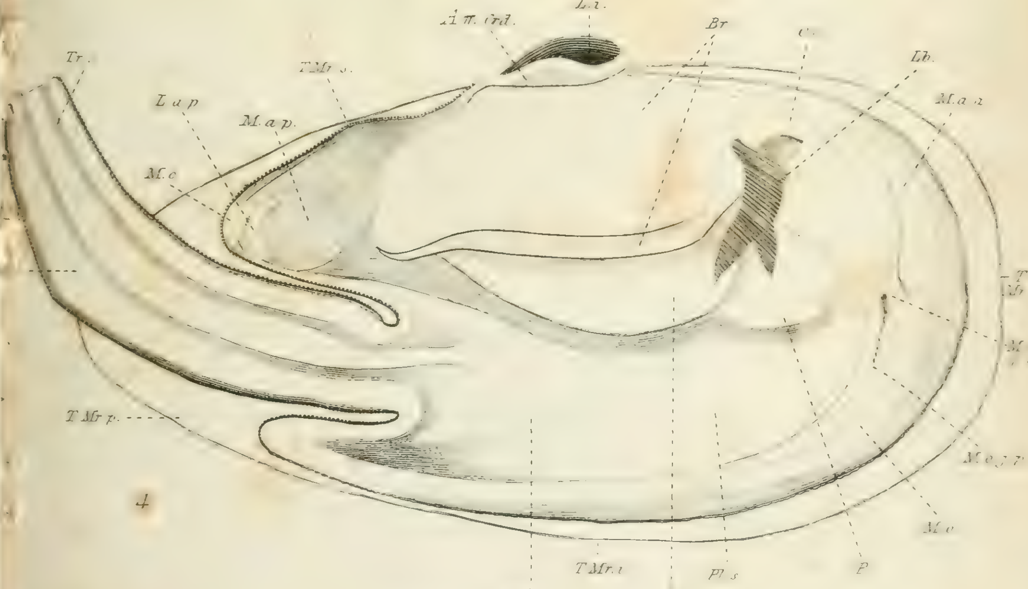
Tr.s
T.Mr.a
Tr.i.
T.Mr.p.
T.Mr.i
M.o.j

3


A.II.Crd.
L.i.
Br
C.
Lb.
M.a.a
Tr.
T.Mr.s.
L.a.p
M.a.p.
M.c
T.Mr.p.
M.o.j.p
M.o
P
Pl.s
A
T.Mr.i
Mr.Tr

4

[illegible] sculp.

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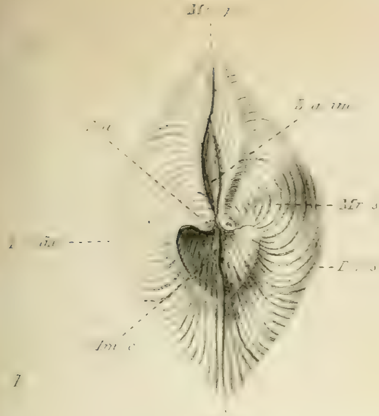
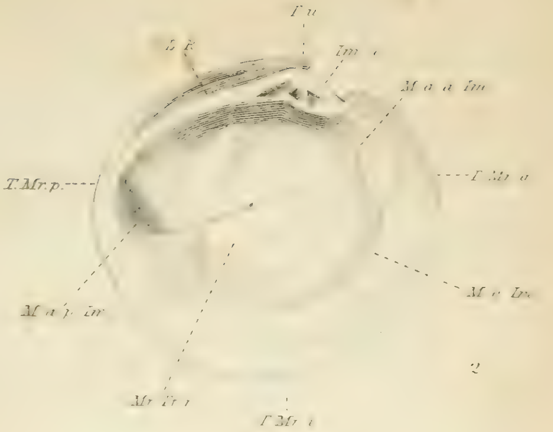
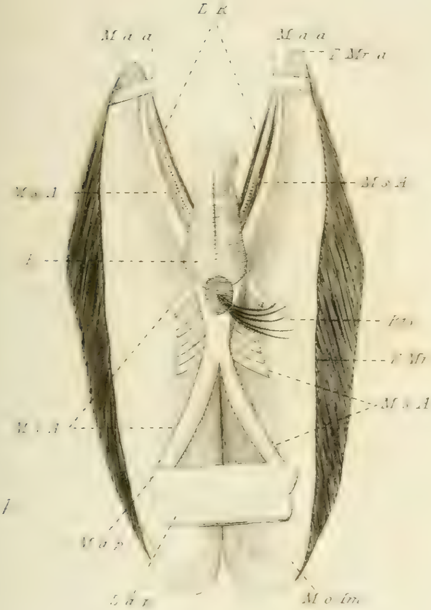

Mr p
L a im
Mr s
Im c
Mr a

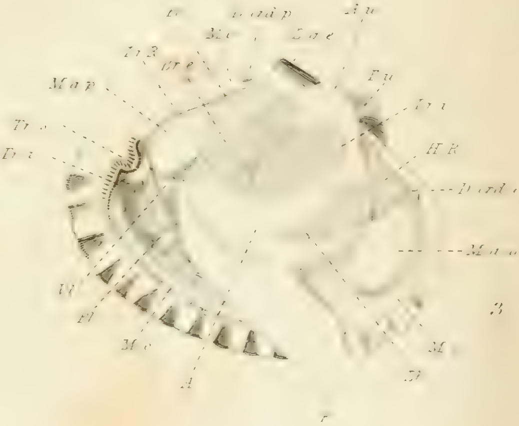
1


Tu
L R
Im
M a a Im
T. Mr. p.
T Mr a
M a p Im
M c Im
Mr Tr i
T Mr i

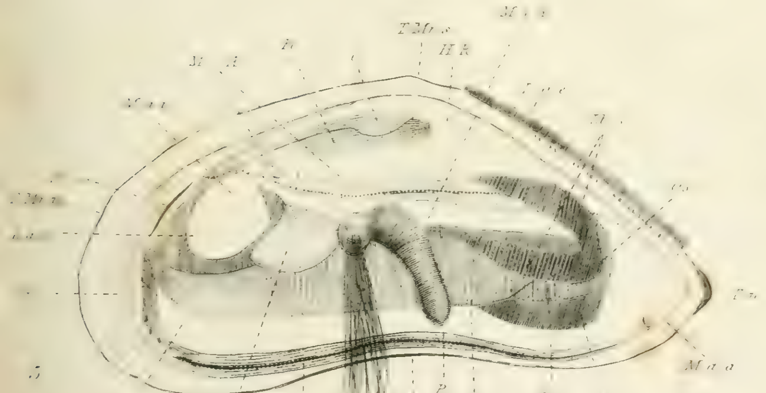
2


L R
M a a
M a a
T Mr a
M s A
M s A
Pes
T Mr i
M s A
M s A
M a p
S a r
M o Im

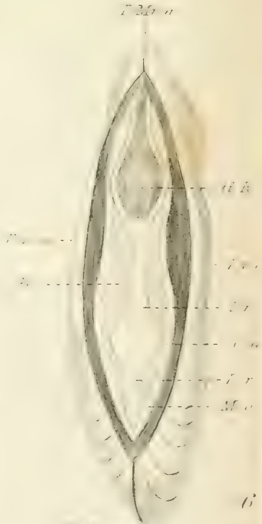
4


M a p
Tu
H R
M a a
M c
A

3

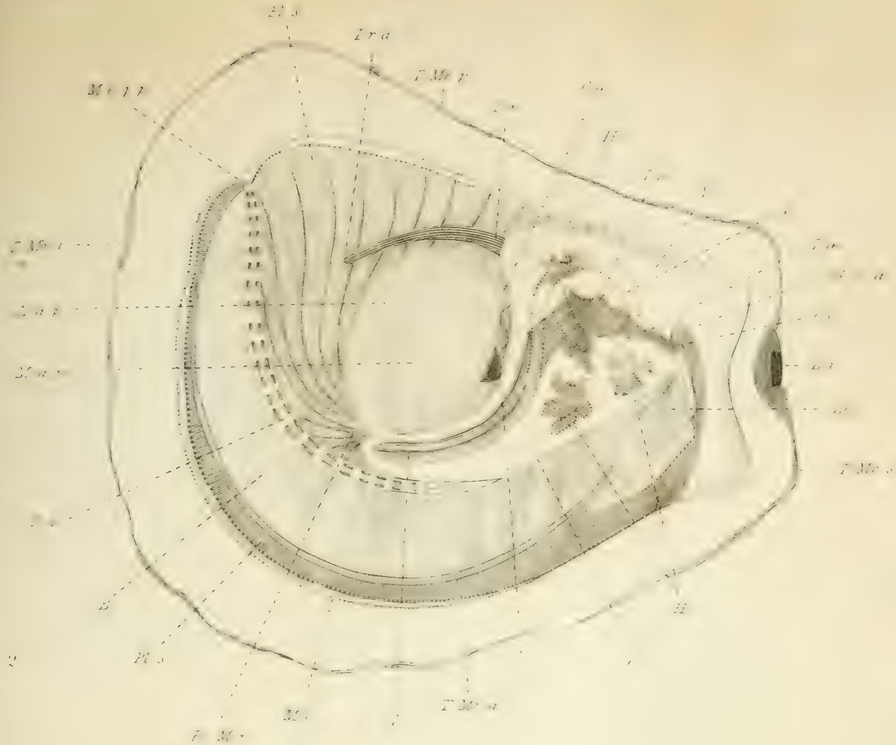

T Mr s
H R
M a i
M a a
R
A
M c
P
B r
Pes
T Mr i

5

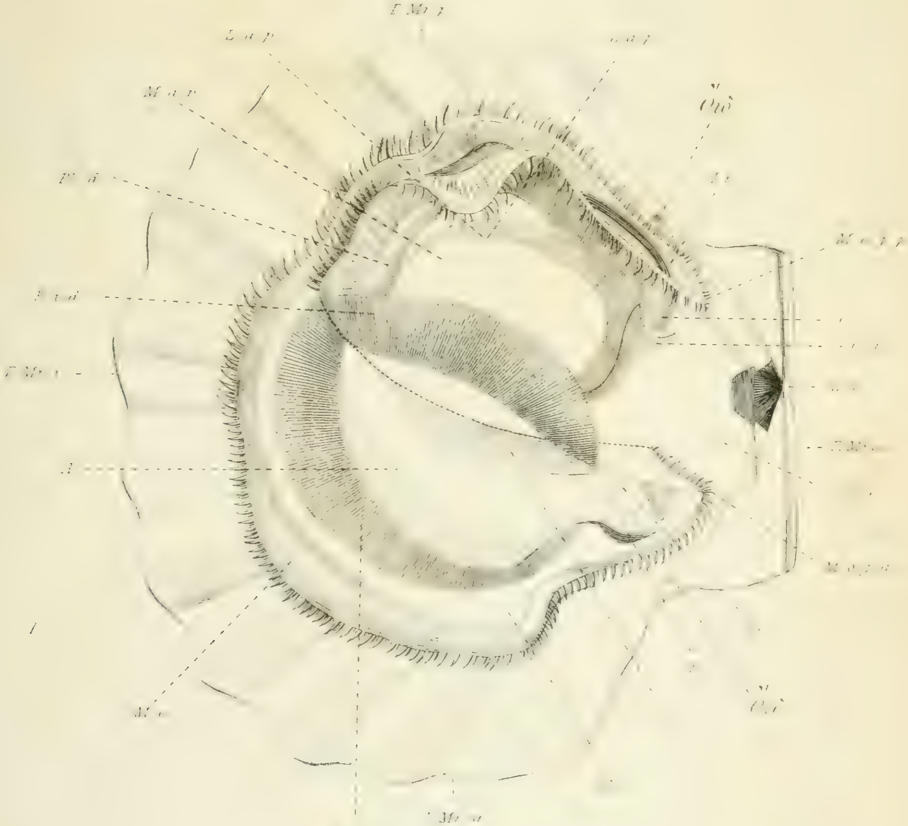

T Mr a
H R
M c
T Mr p

6

J. Curtis sc


H s
I r a
M c p p
T Mo p
T Mo i
L a p
M a p
D
H
B
H s
E Mo
Mo
T Mo a
D t

2


T Mo p
L a p
M a p
F a
I r a
T Mo i
A
Mo
T Mo a
M c p p
M o p a

1

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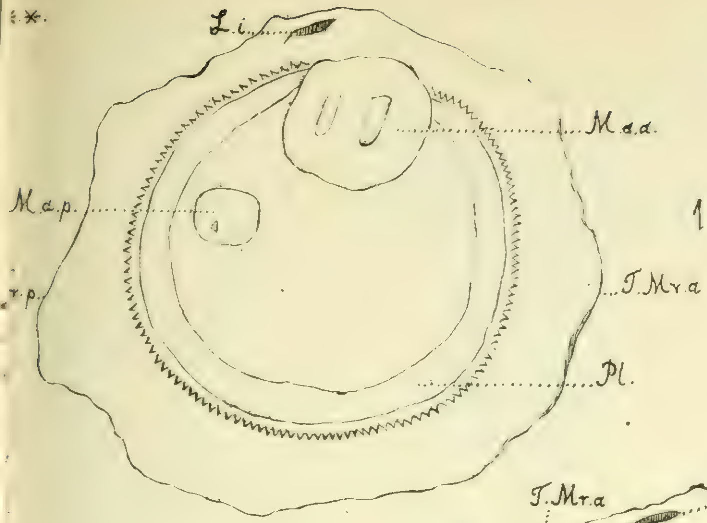
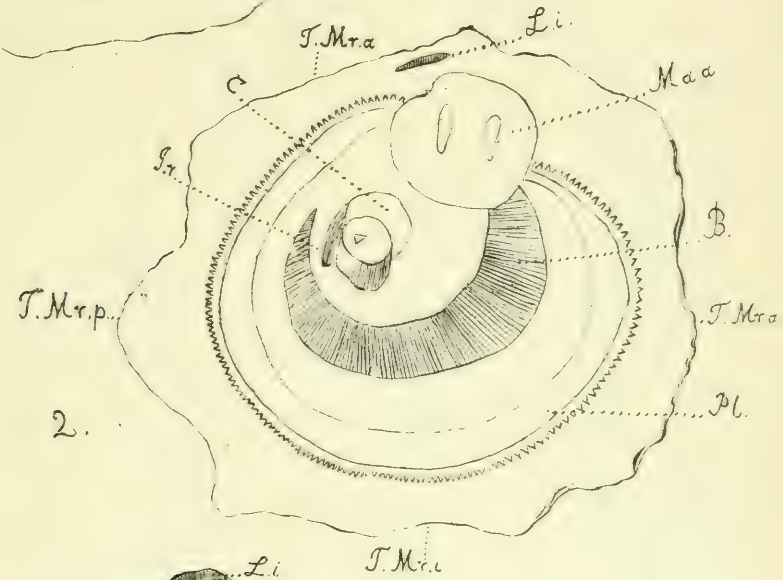
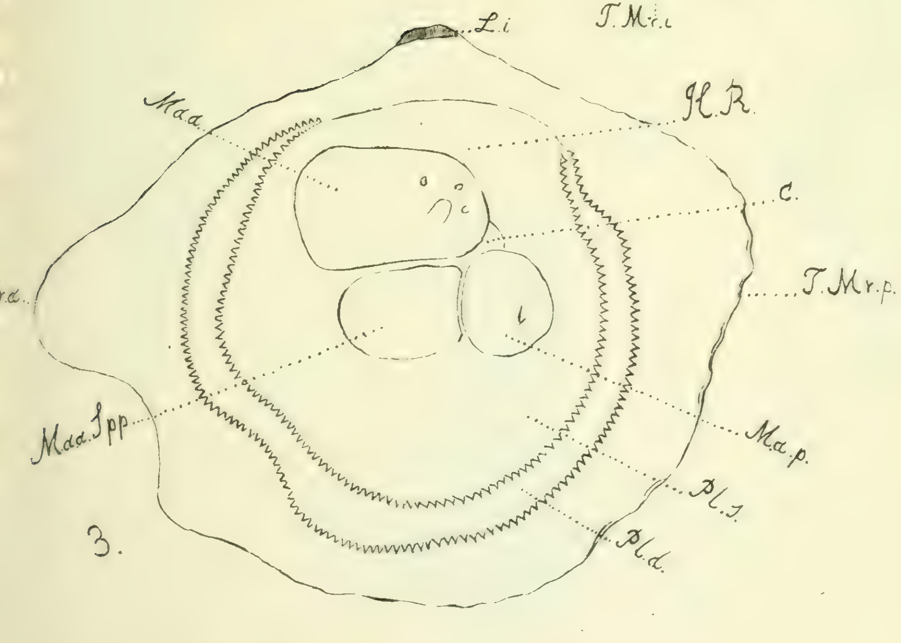

L.i.
M.a.a.
M.a.p.
r.p.
T.Mr.a
Pl.

1


T.Mr.a
L.i.
M.a.a
C.
I.r.
B.
T.Mr.p.
T.Mr.a
Pl.
T.Mr.i

2.


L.i.
H.R.
M.a.a.
C.
r.a.
T.Mr.p.
M.a.a.S.pp.
M.a.p.
Pl.s.
Pl.d.

3.

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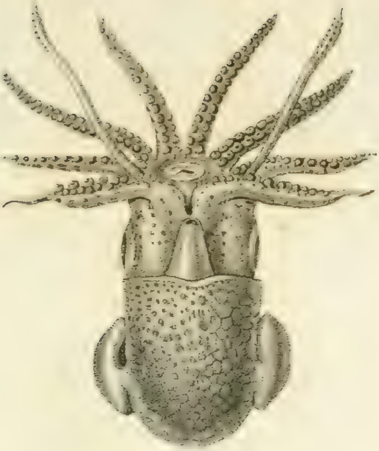
VI.



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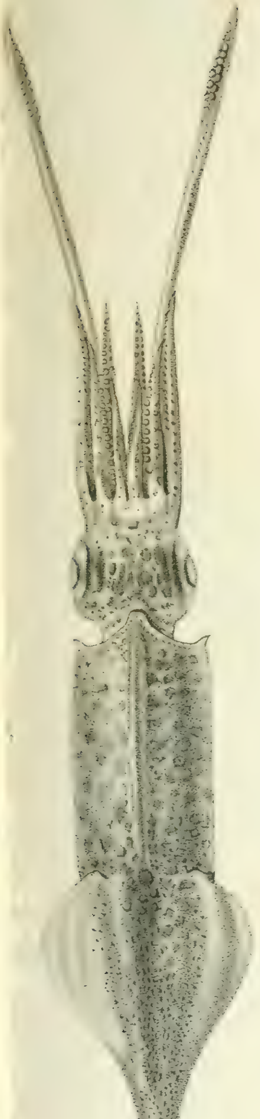

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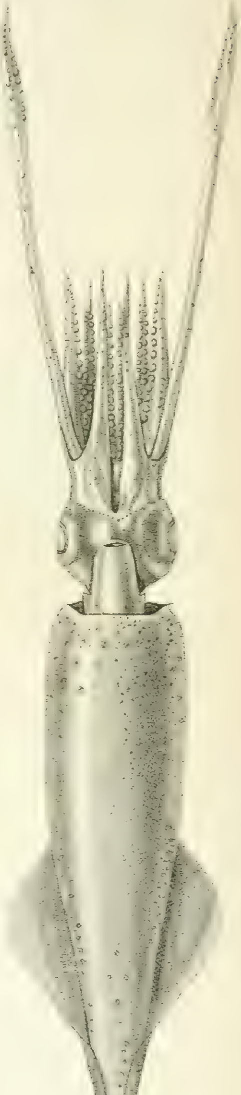
3



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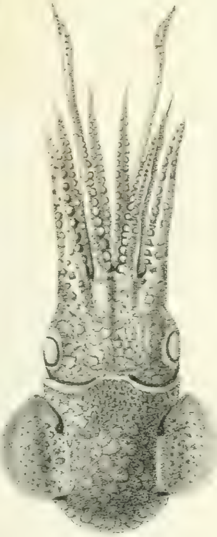

2

urtis del^{t}

M^{c}. [illegible] sculp

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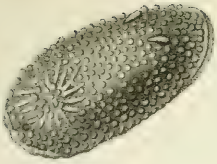
VII.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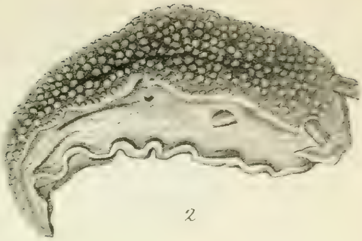
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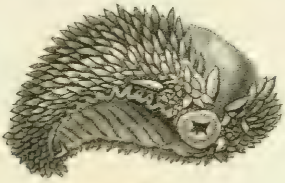
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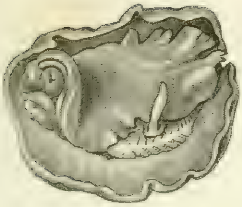
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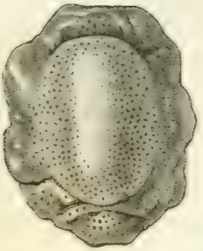
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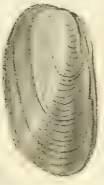
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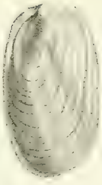
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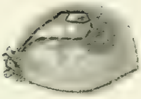
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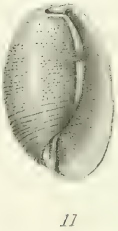
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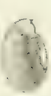
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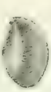
10

I. Curtis del.t

Mc [illegible] sculpt

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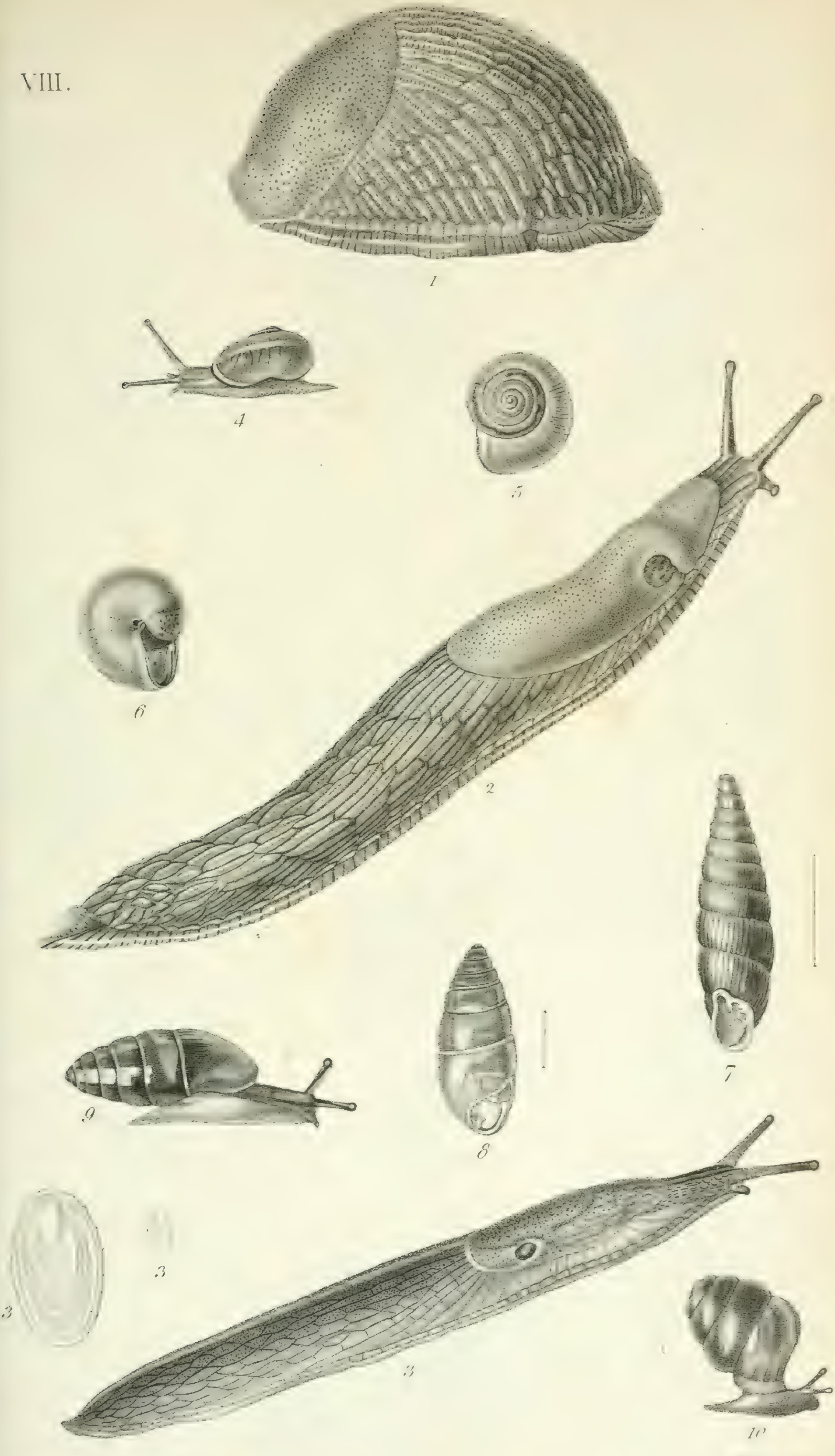
VIII.


1
4
5
6
2
7
9
8
3
3
3
10

I. Curtis del.^t

M.^c Joyeau sculp

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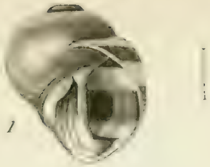
IX.



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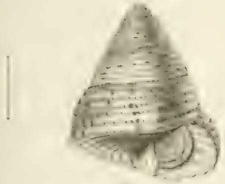

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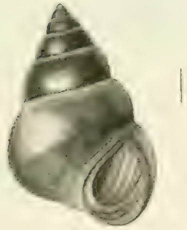

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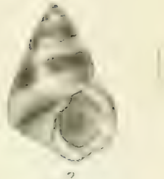

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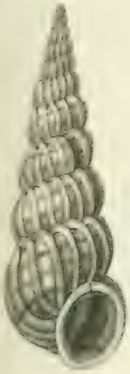

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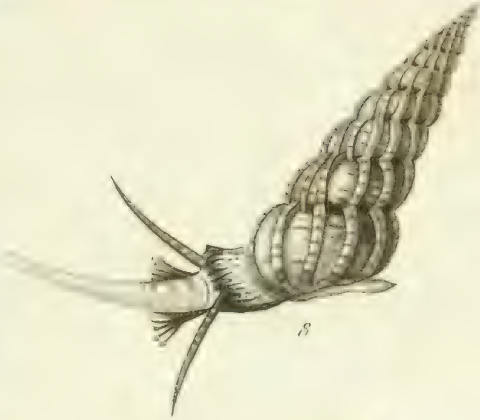

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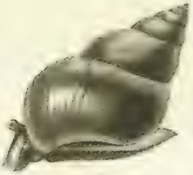

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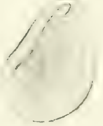

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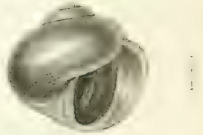

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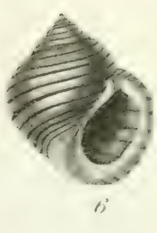

6

J. Curtis del!

Wm Joyceau

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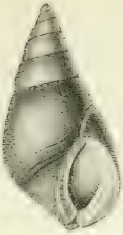
X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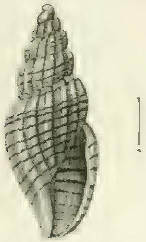
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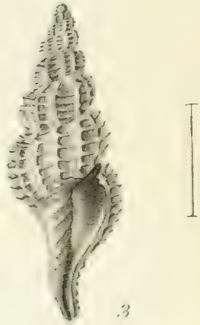
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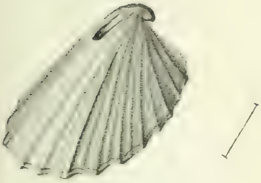
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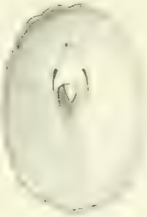
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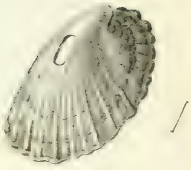
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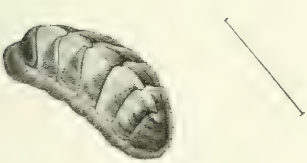
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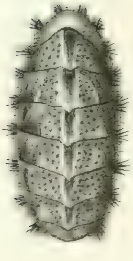
8

I. Curtis delt. Mc Toveau sculpt.

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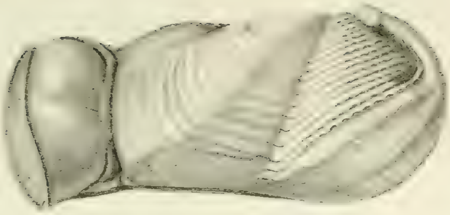
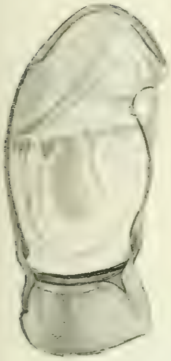
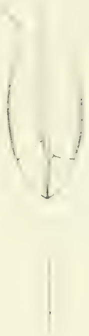
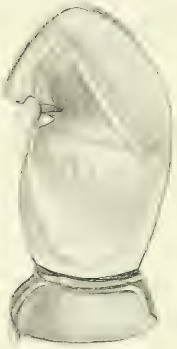
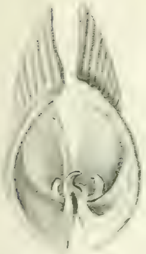
[illegible]

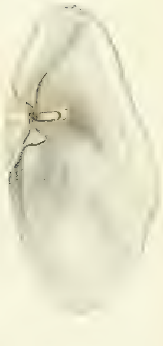


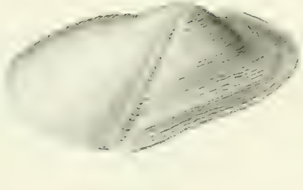


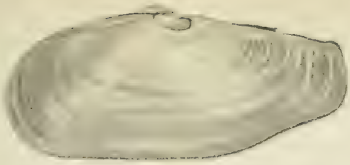












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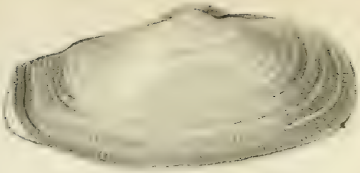

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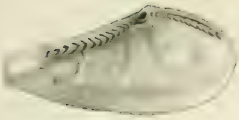

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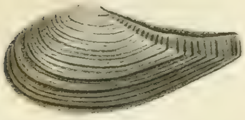

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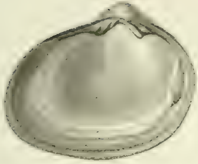

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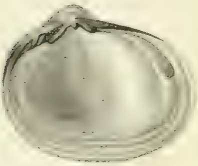

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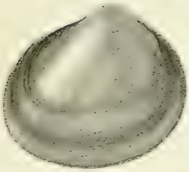

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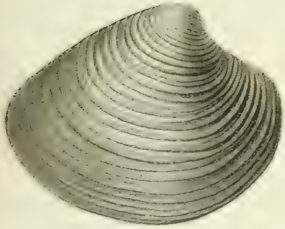

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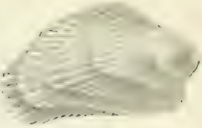

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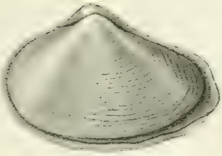

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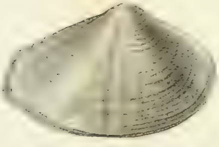

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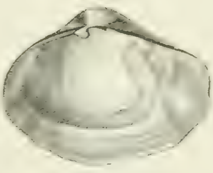

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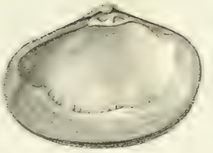

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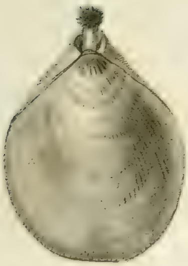

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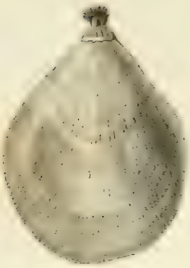

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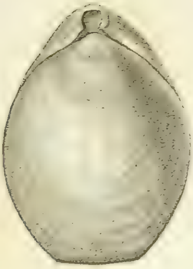

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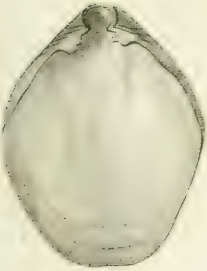

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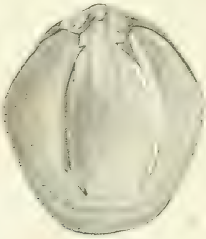

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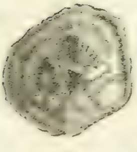

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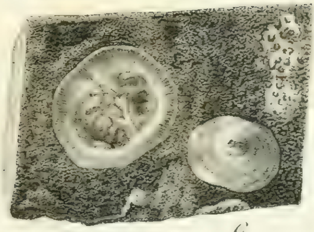

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